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VOCATIONAL EDUCATION IN EUROPE

REPORT TO THE COMMERCIAL CLUB OF CHICAGO

BY

EDWIN G. COOLEY

VOLUME TWO

1915

THE COMMERCIAL CLUB OF CHICAGO

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PREFACE

THIS report describes observations and experiences in European vocational schools during the winter 1913–14. A previous trip, reported in an earlier volume, was devoted mainly to the vocational schools of Germany, Austria, and Switzerland. Most of the investigation, too, was limited to industrial and commercial schools. Comparatively little attention was given to agricultural instructions.

The second trip was for the express purpose of supplementing his earlier observations and experiences by visiting the vocational schools in other European countries, with special attention to agricultural schools of lower grade. With this object in view, Ireland, England, Holland, Denmark, Sweden, Norway, and Germany were visited, and agricultural instruction was especially studied.

In the earlier report the author emphasized the importance of supplemental welfare work for young people in attendance at vocational schools. The experiences of the past year in European countries have shown still more clearly the importance of this work. The vocational school should be the center of a systematic movement having for its object the promotion of the welfare of the industrial youth. No narrow scheme, striving merely for technical efficiency, satisfies the demands of the present. The vocational school as well as the ordinary cultural school must minister to the "whole boy," and must center in his interests and his development rather than in the demands of industry.

Finally, the importance of establishing these vocational schools under the best conditions for success has led the author to study especially the problem of control and supervision as it has been worked out not merely in Germany but in the other countries visited.

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The author wishes to express his special indebtedness to Miss Edith Rickert for her assistance in preparing this report, and to thank the members of the Commercial Club for enabling him to complete his investigation. It is hoped that the two reports published by the Club will furnish adequate information to people interested in the important subjects of European experience in vocational schools.

EDWIN G. COOLEY.

Dec. 1, 1914.

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CHAPTER I

INTRODUCTION

THE superiority of the civilization of today to that of the Middle Ages is not due to any superiority of modern brains to medieval brains. There is no reason to think that there has been the slightest increase in brain power.

The improvement is due solely to improved means of transmitting knowledge, ideals, and methods of thinking and working. Recent centuries have seen a tremendous increase in the number and effectiveness of these means.

This improvement in methods accounts both for the singular achievements of individuals in particular lines of thought and work, and for the immensely larger proportion of the community which now shares in the best thought and the most effective methods of our time.

But these advantages are or should be the inheritance of the whole human race. In point of fact they belong at present to the very few who can afford to take all the education provided by our public school system. While it is impossible for all the members of any society to utilize to the same degree this common fund of education, on the other hand no society can be sound to the core unless all its members have access to the means of self-development long enough to enable them to take what they need to make them efficient and useful citizens. When the great majority of a nation consists of untrained, inefficient, dissatisfied workmen, it is time for that nation to look for the remedy.

This fact has long been recognized by those nations that make provision for the compulsory education of all children up to the age of fourteen. Since books are the principal storehouses of the accumulated riches of thought and feel-

ing, the State at one time proceeded on the assumption that in providing for all its children the opportunity of learning to read, it had done its part. But the experience of the nineteenth century showed that only individuals of special strength, acuteness, and energy are able to make the most of themselves with this meager equipment. Consequently, we have now eight years of work in the grammar schools for all children who are able to complete it by the age of fourteen and such others as have the means and inclination to continue beyond that age. We have high schools, technical schools, and colleges for those who can prolong the period of education to the age of eighteen or beyond. These, however, are considerably less than one-tenth of the entire school attendance. The State, then, is face to face with the question: Has all been done that can be done and ought to be done to help more than nine-tenths of our young people to realize their own powers as individuals and their functions as members of society and the nation?

There is probably no educator today who would dare to answer that question otherwise than by an emphatic No! The injustice, cruelty, and foolishness of educating the great majority of youth up to fourteen and then leaving them entirely to shift for themselves, at the very moment when they most especially need both guidance and training, is apparent and generally admitted. The line of solution is clearly seen to be vocational education.

But what is vocational education? Probably all who have considered the problem would agree that it is such training as will enable a man to make the most of himself as a worker, a citizen, and a human being. In that sense, all education is on a vocational basis. As our school system is organized, however, until recent years it was only the young people who had the opportunity to go on to college and the professional schools, who had any real preparation for their life-work. The addition of technical high schools and of other industrial and commercial secondary schools, and of vocational departments in general secondary schools, has made it possible for many more to get some degree of

practical training related to the problems of work and of conduct. But for the overwhelming majority of children who go to work at fourteen without ever reaching the high school at all, or who through lack of interest in the subjects studied drop out at the earliest possible moment, even before they have finished the grammar school, no adequate provision has as yet been made.

Here at once arises a difficulty. While it is generally agreed that the great majority of young people must go to work at as early an age as the law will permit, and also that all of them should have as much education as they can assimilate, and that the few of exceptional ability should have the opportunity to rise, the question which does not so easily settle itself is whether this additional training, which is admitted to be their due, shall be introduced into the grammar school or added as supplementary after they have begun to work.

There has been much argument in favor of the former plan. Why should we not use our present system, our present equipment, our present corps of teachers? The answer is, that to do so would be to frustrate the whole aim of vocational education.

The aim of our elementary schools is rightly to give, during the period of childhood, the all-round training and general information that everybody needs and that is the basis of specialized training later. To shorten this period of general culture by putting into it vocational training is, on the one hand, to curtail the rights of childhood and, on the other, to force upon children a kind of work for which they are not fitted until they reach the period of adolescence.

At present, the great majority of children leave school at fourteen. The advocates of vocational training in the present school system must either put it into the higher grades of grammar school or raise the minimum age for labor, or both. They propose, in fact, to do both: to give two years of such training in the grammar school, and to get legislation raising the age limit for work to sixteen.

But the law is not yet passed, and even if it does pass, there remain four serious objections to this plan.

1. It would still leave two years of the dangerous, criminal-making adolescent period—sixteen to eighteen—outside the protection and guidance of the schools.

2. It would give the boy training along lines of work in which he had had no real experience, and in which his interest for that season, in many cases, would be without root and easily subject to change.

3. It would try to fit him for a special line of work without any guaranty that changing conditions of labor might not make it quite impossible for him to find that kind of work.

4. It would put the training largely into the hands of teachers who at best could be but amateur workmen.

Each of these points calls for some elaboration:

1. During the period of adolescence, aside from the problems of a vocation, the youth is face to face with all the new aspects of life involved in manhood and citizenship. With his imperfect knowledge, his partially established habits, his general inclination to break away from the old restraints and to form new connections, with the awakening of his whole nature to the possibilities of life and his consequent susceptibility to all sorts of influences, the boy between fourteen and eighteen is in constant danger from all sides—a danger enormously increased if he does not at once find work in which he is interested. It is out of exactly this situation that the army of loafers, vagabonds, and criminals is, year after year, most largely recruited. A system of vocational training which stops at fourteen or sixteen, cannot, even with the aid of vocational bureaus, handle this situation for two of the four dangerous years.

2. Further, it is not until the boy has actually taken his place in the working world, and is gathering the experience of competition and earning and contact in innumerable ways with life outside the schoolroom—an experience that no school can ever give—that he is ripe for the special kind of training which I describe by the word *vocational.*

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[illegible] school system [illegible] [illegible] it is not enough to give him any special efficiency. [illegible] vocational education begins at the other end [illegible] the job itself. Assuming that the boy has the best job that for the time he can get, it shows him how to make the most of it, how to develop and apply his own [illegible]

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This process of training is fourfold. It begins with the analysis of his experience in actual work which is the foundation of this training, and shows the relation of the technical and cultural elements in it to one another. It then shows how these elements should be organized and made to reenforce one another for the successful progress of the work and the development of the worker. Then this organized knowledge must be supplemented from the wider experience and knowledge of the teacher and of other workers. Finally, the whole process must be so interpreted to the young worker that he will understand his work and come into a vital connection with it. Through this fourfold process he will realize that the work in itself is worth doing well, and that the better it is done, the more doors it will open to work that is still more worth doing. He will do his best, secure in the feeling that this best will lead constantly on to better. As a result of this state of mind, he will have a vital interest in his work, realizing that he is not fixed to his job for life, but can push on to one that is still more fruitful, as fast and as far as his ability and energy will let him. Efficiency in work will develop social and civic efficiency; and the salvation of thousands whose lives are now stunted or wasted for lack of this special form of care will inevitably follow.

3. Any good system of elementary education should provide enough practical training of the eye and hand, and should make enough study of its pupils to be able to give them advice as to the kind of work they should try to do. But to suppose that any school system can keep in close enough touch with the varying labor markets to provide just enough workmen of each sort is absurd. If the training is so general that a boy may turn from printing to carpentry, plastering, or plumbing, according to the demand, then it is not enough to give him any special efficiency. Real vocational education begins at the other end—the end of the world, the job itself. Assuming that the boy has the best job that for the time he can get, it shows him how to make the most of it, how to develop and apply his own tastes

and abilities so that he is constantly preparing himself for one that is better in itself and better suited to him.

4. The teacher of a vocational subject in an academic system might, we will assume, get sufficient training in the details of his subject. But in so far as he is bound to give all his time to teaching, he could never, by any system of shifting about, have the up-to-date knowledge, the background of one who was actually in the thick of affairs, or impress his pupils as one who was a master of his craft, one who had attained the goal toward which they were striving. Moreover, his business would be to fit the vocational work in with the cultural studies which must continue to be the chief work of the school, not to use the cultural subjects to reenforce the vocational.

For these reasons among others, I hold that serious vocational work should not be undertaken until the boy has left the grammar school. To say that the work done in the grammar school could be made of a more practical vocational character, without losing any cultural value, is not to touch the argument at all.

Since experience is the necessary basis for all fruitful work of this sort, the best type of supplementary school would be on a part-time basis; that is, the pupils would work most of the time, and their experience at work would form the center of their supplementary training. This training would aim (1) to increase their skill in the line of work they are following, and (2) to give them further training in such academic subjects as bear upon their work; (3) to develop the qualities of mind and heart that make good men and good citizens.

These part-time schools should be day schools and of three different sorts:

1. Schools in which the pupils give only from six to eight hours a week.

2. Schools which, by special arrangement with employers, teach for half time, usually alternate weeks, pupils who are at work the rest of the time.

3. Winter agricultural schools, in which the teaching is

full time for five months (November to April), and the pupils work on the farm during the remaining seven months.

All these schools should be open to pupils between fourteen and eighteen, in order to give every chance to earnest, ambitious workers.

There should be industrial schools for all trades and occupations, each adapting itself to the conditions of the locality in which it is placed. There should be commercial schools for city boys, agricultural schools for country boys; and in addition to industrial and commercial training for girls, there should be schools for domestic science and arts—home-making in the broadest sense of the word.

Undoubtedly there should be more full-time vocational schools for young people who can afford two years of unbroken training. These should be commercial as well as industrial, for both boys and girls, and should in some cases take the place of apprenticeship, while in others they merely prepare the way for an apprentice training. There should also be full-time two-year courses in home-making for girls. But all these schools are less important than the part-time schools, because they would reach only a small minority of the children.

The main stress must be thrown upon the part-time system as the only "people's college" that we are likely to have in the near future.

To perfect this system, mere teaching is not enough. The school must get a real grip on the community. This can be done in several ways:

1. In the country, by combining with the office of director of a winter school that of itinerant teacher, or, as it is called in this country, county expert, whose business it shall be during the summer to reënforce his winter's work among his pupils, as well as to act, as he now does, as general guide and adviser in agricultural matters for the community.

There should be also a staff of itinerant teachers for the State, each a specialist in some branch of agriculture, who would make experiments and give lectures and demonstrations according to the demand.

2. In the city there should be a bureau for the express purpose of studying all the vocations of the community now open to the youth, and of giving advice based upon a careful study of the young people themselves and knowledge of the preparation required, the risks entailed, and the opportunities for advancement.

This information should be accessible to parents, as well as teachers and other school officials, to assist the youth in finding the occupation for which he is best suited. Besides all possible information about different lines of work, the bureau should have thorough knowledge of the boys and girls themselves, based upon physical examination as well as upon the school records. The work already begun in this direction should be extended and developed until we have vocational bureaus comparable with those at Edinburgh and in many cities of Germany.

3. The vocational school, even more than the elementary school, must care for the whole boy. There should, of course, be playgrounds and gymnasiums, libraries and reading rooms; and the social side of school life, as it finds expression in excursions, club meetings, and entertainments, should be emphasized.

Adolescence is the period when the mind first becomes fully awake to the possibilities of social pleasure, and when, accordingly, the right sort of guidance is peculiarly important. The vocational school is the place where this sort of help can be most effectively and abundantly given.

4. The vocational school, rather than any other, should be the true social center for the entire community, whether in the city or country. The atmosphere of the high school is alarming to the plain people. They feel that they have outgrown the grammar school. The vocational school touches them on the side of their chief interest—earning a living; and from that starting point, they can easily be brought to enter evening classes both along the lines of their work and in subjects of more general culture. Thus the vocational school has a better opportunity than any other

school of reaching the father through the son, and the mother through the daughter.

"But," the question is asked, "granted that such schools are most successful in separate buildings, with special equipment and with a special staff of teachers having a wide and up-to-date practical experience in special lines of work as well as teaching ability, why can they not be managed by the academic boards?"

The answer to these questions is, in one word, *specialization*. If we find it necessary to have separate management, even in the academic system, for the university, normal, high schools, and the elementary schools, how much more necessary is it that schools with the peculiar problems of vocational training to deal with, in adapting themselves to special needs and special local conditions should have a free hand. If city schools and country schools are under separate boards and are adapted to special ends without friction, why should not these "schools in life" have their own boards in which all interests are represented? It is no more fair to speak of "dualism" in this connection than to speak of dualism in the city and county systems.

It is simply a case for specializing so that the weight of responsibility falls upon the people whose experience enables them to judge best of the community needs.

But, in any case, the system of separate vocational schools which I am urging for the State of Illinois does not propose to interfere in any way with the present school system. That may or may not need reform from within. All the present plan aims to do is to take the thousands of young people whose lives are hampered or altogether wasted through lack of proper training, and give them a chance to develop such powers as lie within them, and so convert them into useful and contented citizens.

The opponents of a special system of schools to do this special work seem to forget that various countries in Europe long ago tried to solve this educational problem by means of the school system then in existence, and *in not a single instance* with entire success. At the present moment all

the countries that are attempting to deal with agricultural and technical education have either reached the conclusion that the academic system cannot do the work successfully, or are in the process of changing their views in that direction. In not a single case is the pendulum swinging the other way.

About forty years ago, Sweden, for instance, reformed its system of vocational schools, but left them under the general management of the academic board. What was the result? The Royal Commission, appointed in 1907 to investigate conditions and to draw up a new plan for reform, found that little progress had been made during the forty years, that the teaching prepared for all vocations in general and for none in particular, and roused but little interest in young workmen; and they attributed the failure of these schools directly to the fact that they were not under the control of a separate board in which men in the industries and in business had the controlling voice.

In Ireland, also about forty years ago, the study of agriculture was introduced into thirty-eight national schools, and other agricultural schools were established under the existing school management. By 1899 the teaching of agriculture had been altogether dropped from the national schools, and all but two of the agricultural schools had gone out of existence. The plan had failed. By a new Act of Parliament in 1899, a separate Department of Agriculture and Technical Instruction in Ireland was established, and the two separate school systems have worked from the beginning without a jar. The results already obtained by the vocational schools all point to steady and enduring progress.

In Holland, the system of agricultural training that has grown up within the last twenty years, and is now under the management of a man who was once an elementary school teacher, is entirely distinct from the academic school system. And the development of Dutch agriculture under this system has been so marked that Germany looks upon her little neighbor as a serious rival.

In Germany, one state after another has reached the

conclusion that the two systems of education must work independently of each other. Now, not merely Prussia, but Baden, Bavaria, Württemberg, and all the other greater divisions of Germany, have worked out in different ways plans by which vocational training shall be free of academic control.

In the canton Zurich, Switzerland, the agricultural and commercial schools are not even under the educational ministry, and all the vocational schools have separate local boards. This separation between academic and vocational school control the Swiss educational expert, Herr Biefer, regards as fundamental.

England and Scotland were, just before the outbreak of the War, in process of changing. The agricultural schools of both countries were in 1912 taken from the control of the boards of education, and put under the Ministry of Agriculture. Last spring a movement was on foot in England to organize a system of vocational continuation schools on the German model and to place it under the management of the Board of Trade and similar bodies. In a pamphlet written by Professor Ogden of Cambridge University and Mr. R. H. Best, a prominent business man of Birmingham, to further this movement we read: "The reforms which we have been advocating do imply *a new and independent class of school with its own problems and its own aims* — and consequently the need of a special controlling authority."

Mr. Best wrote me that a bill embodying the ideas expressed in this pamphlet would be presented to the English Parliament during the summer.

What is the conclusion? Europe has no doubt. Why should we try to make a piece of public machinery do work for which it is not fitted, when it is perfectly easy to add a piece of supplementary machinery which will work in perfect harmony with it, and which can be perfectly adapted to the purpose in view. To do this is, as the experience of Europe shows, merely common sense. The plan does not introduce an imaginary dualism into a system wrongly supposed to be now a unit; it merely pushes specialization a step farther.

It is not undemocratic: it merely provides for the great majority who are turned out by the present system, unprepared for life. And these cannot, by any modification of the present system, be prepared for life through the analysis, organization, supplementation, and interpretation of their experience, when as adolescents they face the real conditions of working for a living, until they have left the atmosphere of the academic school and are breathing that of the outer world. At just this point, not sooner and not later, we need this special kind of school which Europe evolved half a century ago—this people's college that is, perhaps, the most potent factor today in the saving of a state.

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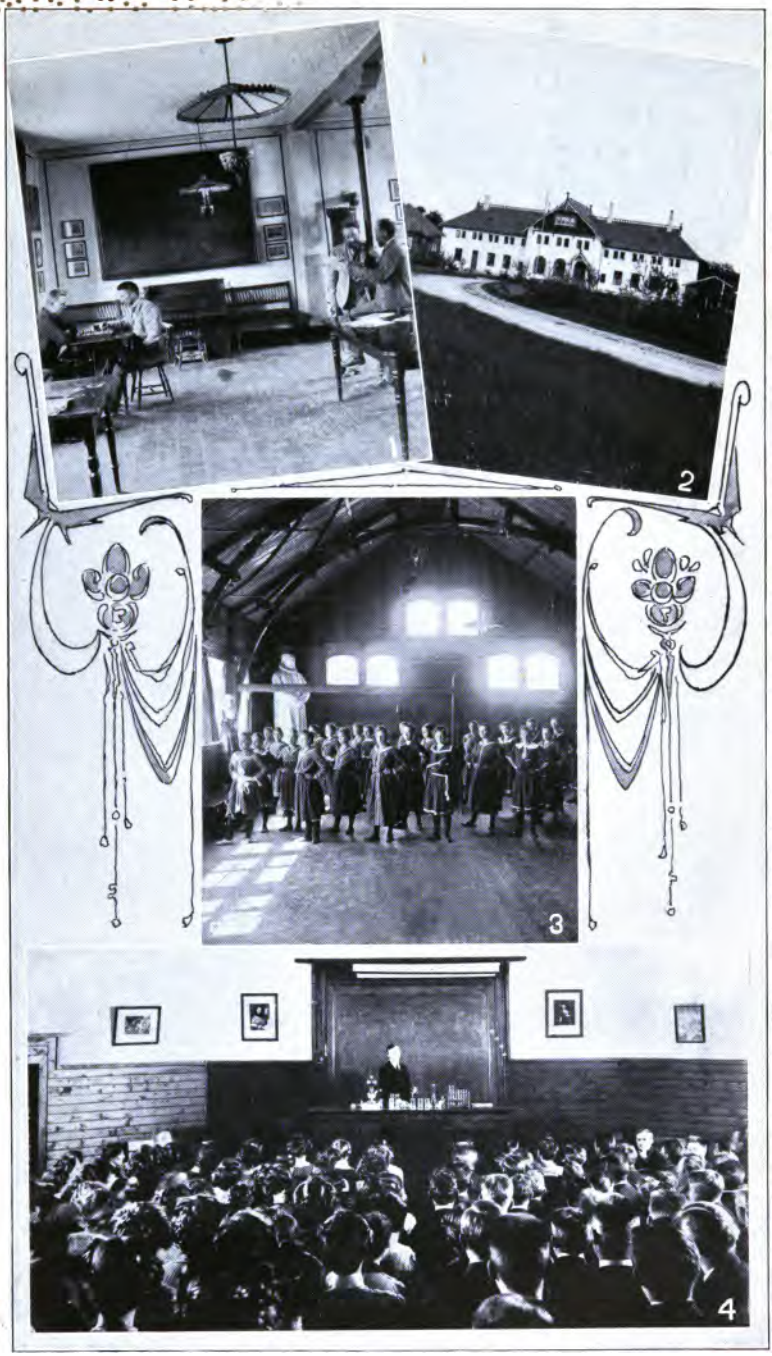

1. Recreation Room in People's High School, Roskilde, Denmark
2. People's High School, Roskilde, Denmark
3. Gymnasium in People's High School, Roskilde, Denmark
4. Lecture Room in People's High School, Askov, Denmark

CHAPTER II

BISHOP GRUNDTVIG AND THE PEOPLE'S HIGH SCHOOLS

AT the middle of the last century, Denmark had reached perhaps the low-water mark of her history. Politically, she had been defeated by England and Germany; economically, she was near bankruptcy. Her commerce had declined; the old Viking culture seemed to have disappeared and been forgotten by the people themselves; the national language had been displaced by bad German among the educated classes; while the speech of the country folk was dissolving into a group of dialects without standard or stability. A Danish prime minister even proposed to substitute German as the written language of the country.

At this critical hour of need arose a great man to meet that need, Bishop Grundtvig. A clergyman and a scholar, the representative of the aristocracy of the intellectual and spiritual life, he saw clearly that a great awakening was necessary to save the country and its people from stagnation and decay. He realized that the only way to bring about this change was to replace the humanistic education of his time, which was utterly foreign to the lives of the people, by a revival of the old Northern culture as it flourished after the exploits of Viking days, and to build upon this as a basis an active and creative national life.

As early as 1832, he raised the question of the need of a liberal education for the great mass of the people, as a counterpoise to college education for the few. As a scholar, he believed in college education; but he felt that it tended away from the cultivation of the life of the spirit into mere book-learning. He realized that research was essential to keep any education from becoming mere superficial polish; but the education that he wished to give to the whole

people, he felt, must be much more than preparation for college. It must be independent, self-contained, "a real spiritual power," he says, "through which the life of the present may establish its absolutely necessary rights—rights which the learned so often misunderstand." And the center from which the school work should branch out in all directions, which should assemble and organize all educational activities, must be the Fatherland itself.

It is interesting to see how Grundtvig's threefold experience as churchman, scholar, and educator appears in the theory that he then developed. He believed that the first years of manhood and womanhood are the formative period of the spiritual nature, when great hopes and visions come into being and foreshadow the mature life, when "the soul reaches out for the cloak that fits it." With Rousseau he was anxious to preserve the rights of childhood from the demands of mature life. He emphasized the need of physical development during the years between fourteen and eighteen, the hobbledehoy period (*die Flegeljahre*); and he held that the training of every boy and girl during those years should be largely physical, the tempering of the body and the sensual nature by actual work and by free exercise in all kinds of sport.

He set the eighteenth year as the time when ideals can best be established, when the steps can be built, up which young people will go to "the *work of life* as if going to a feast."

For this stage of development, then, he proposed specially organized schools which should put inspiration into the lives of the young people, should keep them from straying after false ideals, should control the desires which so easily overflow the banks of reason at this time, and give them a real foundation for helping themselves and others. To this end, his plan was to take them out of the industrial world for a short time, to keep them largely away from vocational activity, and not to emphasize book-learning and lessons by rote, but to awaken their power of idealization and to broaden their mental and spiritual outlook,

at the same time giving them the groundwork necessary for success in all vocations, whether the work should be done with ink and paper, with plow, needle, or hammer and anvil. The bishop sarcastically deprecated the idea of "producing mere professors, public officials, or candidates for the poorhouse." In other words, this new education was to be at once general and practical. He says further: "The chief aim is to teach young people to understand noble, active human life with its wonderful laws. Our national culture must rest upon the enlightenment of all classes and if education is organized as if everyone were to be an official or a gentleman of leisure, the entire people will die of hunger. It is not a question of what will be serviceable for the officials or the leisure class, but for those who will be neither the one nor the other. Our aim must be to provide a liberal education which will make the whole people fit for their work and happy in their situation."

The high schools established on this theory admit only pupils who are eighteen years old or more, and who have usually chosen a vocation and know something of it. They aim to make each one return to his work with greater interest in it, and with a clearer perception of the social and economic conditions surrounding it, with a thorough knowledge of what has been accomplished by the Danish people in the past, and with a desire to take part in their future achievements. As Mr. Alfred Povlsen, director of one of the largest of these schools, says: "This education should never lead to discouragement or contempt for work, but should dignify labor and increase the ability to do it well."

Further, these schools aim "to fill up the gap between the educated and the uneducated; to bridge the boundless abyss which the hierarchy, the aristocracy, and the Latin schools have built between almost the entire people upon the one side and a handful of the so-called educated and enlightened upon the other."

Grundtvig, who himself had written more than 30,000 pages of printed matter, was emphatic against mere book-learning. He says: "I love books, for they form a bridge

that connects me with the past; I hate books, for they set up a wall between me and the present." Therefore he wished these schools not merely to give needful information, but to train the emotions and the will, not by means of books but by word of mouth—as he calls it, "the living word." He says: "First and last, it is the living word that must be used, because this is the only living tool that the spirit has upon earth. We can never get into touch with the people except by what passes from mouth to mouth." He knew that the common people, unused to the printed page, learn what they learn by oral transmission, and that during the few months they are in attendance at these high schools, the only strong appeal that can be made to them is through this "living word."

As this idea is the very foundation of Grundtvig's pedagogy, it will perhaps bear elaboration. In explaining the effect of the "living word" as passed on from master to pupils, he says: "I am convinced that it not only expresses this or that fact, but in its earnestness gives something that may be called inspiration; that in the breast of each human being there slumbers a higher life power, which, unless we stubbornly close our ears when it finds adequate expression in words, carries us along with it. This higher kind of speech, these winged words, I have learned to know and admire and to wish for myself, and through this I was carried back to faith in the living power of the invisible, in the spirit and spiritual world as something that is real, indeed, that has a stronger and higher reality than those things that we see with our eyes."

The first condition of teaching, then, in these schools is that there should be a direct, an immediate, appeal from the teacher to the pupil; that the teacher's words should be neither technical nor oratorical but should have in them "a deep undercurrent of feeling that penetrates the heart and rivets the attention."

On this theory examinations are unnecessary and have never been introduced. Povlsen says of the schools: "They are not established to lead directly to better pay, more profits,

or better positions as such. There must not be any advantage gained from attending such a school but what can be neither weighed nor measured, on which no pecuniary estimate can be placed. No other profit must be derived from this instruction than the increase in inner worth which all good learning gives."

The instruction given may be divided into (1) Danish language, literature, and history; (2) physical culture and singing; (3) science and a few other subjects.

Practical work, vocational training proper, is the exception, not the rule.

Perhaps sixty-five per cent of the time is given to the Danish language, literature, and history, with all the emphasis upon the method of teaching, and the personality of the teacher, rather than upon the subject matter. "The aim is not to learn this or that, much or little, but to prepare for the teaching of life." If the schools of any country can really do this, the problem of vocational education will be greatly simplified.

In the study of the mother tongue, the aim is to get free and natural expression. The pupils are not tormented with formal grammar and rhetoric, but the masterpieces of Danish literature are used to awaken the spiritual life and to create ideals in a race that, as Grundtvig said, "had been brooding in stupid materialism."

From the time of Grundtvig, song has been much used in teaching the mother tongue. The old bishop said, in a letter written in 1841: "Among the teachers of a high school there ought to be at least one who is master of the mother tongue, not only as it is found in books, but as it lives in the nation; at least one who knows and loves the history of our Fatherland and is able to picture it vividly in words; at least one who knows and loves our national songs in their old form as well as in the new, and is able to lead the choir himself; at least one who has seen much of our Fatherland and knows the nation, its trades and resources; and, finally, one learned in the law is to be desired, one who can give the youth a true and vivid apprehension of our Fatherland's

constitution and laws as they were formerly and as they are now."

He also maintained: "Denmark would be ten times happier if the beautiful Danish songs which were then only on paper, never sung except on state occasions, echoed in all our school halls and resounded in fields and forests. These songs constitute a connecting link between the youth and the glorified spirit of the people as expressed in their literature. It is only the lack of this necessary link which causes the people to become more lifeless, dull, surly and without hope while their literature overflows with life and the fullness of glorious recollections of the past and illuminating anticipations of the future." He says further that he would rather have one of his little songs wafted to the ears of his fellowmen than that the hands of all men should be industriously thumbing the pages of his thickest books. The greatest joy of the poet is when naked childish feet can trip about the streets to the melody of his songs, and that song of the poet is his masterpiece which the maiden can sing while binding the sheaves or while dancing at the village feast.

In these schools, singing is more than a subject or an art; it has become an atmosphere, a feeling, an interest that embraces everything else in the high school teaching and is inseparable from it. The pupils sing one or two songs before each lecture and very often afterwards. When I expressed surprise at the large amount of time given to singing these national songs, I was told that they brought a harmony of spirit that was conducive to good work.

The greatest stress, however, is laid upon history as a character-forming study. The theory is that the race reveals itself in the words and deeds of individuals; that all human wisdom is fundamentally historical, and that knowledge of the past is the only way of understanding the present, and of making judicious plans for the future. As history is cumulative experience—an experience of which no individual, conditioned as he is by time and place and circumstance, can compass more than a minute portion, even in the longest life, and as the young people themselves

are totally lacking in all such experience, it is history that can best supply their deficiency in this respect.

A Danish writer, Thomas Bredsdorff, director of the People's High School at Roskilde, says: "Instruction in history is vital when it causes life to be felt, consciously or subconsciously, as a stream rising in the remote past and rushing to the sea of eternity. We are in this stream; its waters are all about us so that we feel ourselves a part of it and are borne up by it, in joy and sorrow, even to eternity."

Another writer, Begtrup, uses a similar figure to express this idea: "History does not mean books and maps; it is not to be divided into lessons and gone through with a pointer like any other paltry school subject. History lies before our eyes like a mighty and turbulent ocean, into which the ages run like rivers. Its rushing waves bring to our listening ears the sound of a thousand voices from the olden time. With our pupils we stand on the edge of a cliff and gaze over this great sea; we strive to open their eyes to its power and beauty; we point out the laws of the rise and fall of the waves, and of the strong undercurrents. We strive by poetic speech to open their ears to the voices of the sea which in our very blood run through the veins from generation to generation, and, humming and singing, echo in our innermost being."

In this instruction are included the old legends of the people which relate the most noteworthy events in the history of the Fatherland. Grundtvig says: "The depth of the love of a people for the Fatherland can be measured by the living stream of their recollections of their illustrious fathers. It would be foolish and a betrayal of faith to substitute for these treasures a critical investigation of history with boys who do not know what an investigation means."

History, then, in every form, the history of the world as well as of Denmark, the history of religion and of civilization, is the controlling study in these high schools, and when the pupils are familiar with the past, the teacher discusses

in a popular way current conditions and problems in society, the state, the church, or the school.

Hollmann sums up the theory as follows: (1) History is the center of all education; and (2) in teaching history it is the vivid spoken word that is all-important.

The aim is not a bare formal exercise of the memory and understanding, but growth in spiritual power, for which is needed, on the one hand, pupils who have reached the age when they are most susceptible to intellectual and spiritual influences, on the other, a sympathetic personality in the teacher.

Grundtvig speaks of "the spirit of the race that unites all generations into a living whole." He urges: "We ought to and can fight in the company of the best"; that is, "Not only should we follow the example of our forefathers, but we should really feel that we are fighting in the same fight with those who have gone before us. . . . .

"The study of history seems almost useless if it cannot make us feel the connection between ourselves and the lives of the earlier members of the race. . . . .

"If our history cannot mean to us the sum of what our fathers fought for and our mothers wept for, as true an inheritance from them as our natural inheritance, then it is a mere amusement for leisure time, but can never be alive. Popular education means an education that has grown out of a heartfelt living together with the history of the people, and from a belief that this history, as belonging to all members of the race, will be able to unite them into one living organism."

Such instruction must necessarily be given through lectures, not textbooks. Mr. Bredzdorff of the Roskilde People's High School says: "The historical lecture has become the very pulse of the high schools. Here past, present, and future make one living whole. The countless generations are not disconnected fragments drifting and vanishing in the stream of time. No, generations follow the course of generations, and unite us in one great communion of the people, those in their graves living still in that

spiritual beat of the waves as they move forward through the ages."

Grundtvig held also that the high schools should give some attention to the statistics of the country, its constitution and its legislative and administrative, national, and communal organizations. He wished the organization of the state to be clearly presented but without involving political issues. He did not wish the school to become a battleground of political opinions, but he hoped the youth would receive there enough understanding of political affairs to be able to form opinions for themselves so they they would not fall helplessly into the hands of the political agitator. They should be instructed as to the meaning of legislation so that they would understand that it is not an arbitrary matter but an emanation of the people's will. The schools must be in tensely Danish. He did not believe in the cosmopolitan: he might walk erect upon two legs and have a nose in the middle of his face, but he could have no soul. Each nationality, he said, like kinds of wood, had its own grain; and the cosmopolitan was mere sawdust. Hence, an understanding and love of the Fatherland must be the very core of the work in history.

The idea of combining technical, agricultural, and industrial training with the work of these schools has often been suggested. About thirty-five (out of eighty) have some agricultural instruction, but most of them have kept to their original basis of a liberal education. Pupils are urged to put in a winter at a people's high school before entering a winter agricultural school. On the monument to J. C. LaCour, who founded the agricultural winter school at Lyngby, is found the following inscription: "The Danish agricultural school is the daughter of the Danish people's high schools and must, like these, be built upon the foundation of the faith and life of the people."

Grundtvig's idea was to have near each high school a well-conducted agricultural plant, and shops in which the pupils might see practical work; but he did not believe in introducing technical instruction into the schools themselves.

His purpose was, in connection with the lecture work, merely to provide opportunities for direct acquaintance with many features of economic life.

So thoroughly does the historical method dominate all teaching that even science is presented largely as connected with the investigations of great men. For instance, a lesson in electricity might turn on the work of Franklin; in botany, on that of Linnaeus. Naturally, this lends an immediate human interest to the subject. It may be noted that this movement towards connecting science with history has begun in other lands, and that several books have been written to encourage this type of instruction in American schools.

In my own observation, I was impressed with the freedom and naturalness of the relations between teachers and pupils. I saw no machinery for discipline. The students seemed happy and at the same time intensely interested. I was impressed by the tone of earnestness of the teacher's lecture and by the attention given by the students. In one case, in Roskilde, I almost sprang from my seat at the opening sentences of the teacher's address. His call was like the sound of a trumpet, or like the Marseillaise, which is not music but a battle cry.

In the gymnasium at Askov, the students preceded their hour of exercise by marching about the hall and singing a hymn to the Danish flag; after the exercise followed another march and another song. I have never seen anything of the kind outside Denmark; I found my hands clenched and my heart in my throat. I felt that I understood a little of the Viking spirit.

The teacher asked me whether I had seen the monuments at Skibelund, and added that they were a part of the patriotic education of the students of Askov.

At this same school the principal told me of a conference of representatives of the churches of Denmark to be held at Askov that very day, to discuss the question of the separation of Church and State. I saw them drive in, about seventy or eighty men, from the little railway station two

miles away. What impressed me most was the fact that this important conference was held, not in Copenhagen, but in a little country high school, two miles from nowhere. It showed that the schools are an integral part of the social life of Denmark, when they are considered to furnish the proper atmosphere for settling so momentous a question.

The next morning I set out in the rain for the monuments at Skibelund. They were on the edge of a little bluff looking down over the German frontier. On the west end was a national amphitheater, with raised banks of turf, and a pulpit in the center, near one end. This amphitheater would seat perhaps three thousand people. Around the amphitheater were a series of monuments of prominent Danes—no soldiers, but teachers of the people's high schools, prominent men in the coöperative movement, writers, and organizers. Over the edge of the bluff, near the frontier, was a little schoolhouse, where the children of Danish parentage in Schleswig come in winter to study the Danish language and sing the Danish songs.

A little farther along the bluff was a granite monument of a female figure personifying the Danish language and literature, with busts of two famous Danish poets by her side. Her arms were stretched out to her brothers in Schleswig. Still farther along the bluff was the battle monument. It was a huge granite triangular block, representing the old Norse battle formation. King Magnus was at the fighting angle, his warriors with their battle axes forming the sides of the triangle. Above, cut in the granite, were the three ravens of Odin, and three bells, the bells of the old cathedral of Trondhjem in Norway, hundreds of miles away, which the soldiers heard cheering them on to victory over the heathen Wends. On the back of the monument was a spirited inscription, expressing the hope that Denmark would again come to her own as against the Prussians (the descendants of the heathen Wends).

To this place come students from all the high schools of Scandinavia to hear patriotic speeches and sing patriotic songs.

Altogether there are about eighty of these high schools with about 10,000 students, nearly all from the country. The usual time of attendance is one winter. It is estimated that more than thirty per cent of the young men in rural districts have been pupils, and of these many have been encouraged to go on to the winter agricultural schools.

The schools are in session from November to May for boys, and during the summer for girls. The course of instruction is much the same for both, and many of the teachers are employed for both terms.

The students live in the school, but the charges are low: board and lodging and tuition cost about $9.45 a month in winter and $8.64 in summer. Deserving poor students get government assistance; and each school itself receives about $810.00 a year from the government.

Teachers and students take at least one meal a day together. This living in common is held to be one of the important parts of the school program, as it is believed that it has developed the capacity shown by the Danish people in later life for working together in business affairs. And it certainly is true that the Danes lead the world in coöperative farming.

The teachers are not required to pass an examination, but are appointed by the director of the school. The school itself is almost always his private property or belongs to a high school association; and the State, on account of the smallness of its contributions to support, exercises a very limited supervision. Under these conditions of freedom, fully half of the schools quickly go to pieces; but those that continue are very much alive. Only persons with a special gift for the peculiar kind of teaching required and good executive ability can hope to succeed.

What have these schools done for Denmark? A German writer, Dr. Madsen, sums up their work as follows: The advantages are both material and intellectual. First, the schools have been an exceedingly important factor in the economic life of the country. Only an enlightened and active class of farmers could pass so quickly and so com-

pletely from one branch of production to another as the farmers of Denmark did in the eighties. At this time, in order to avoid a crisis, at one stroke they turned from the production of wheat to the production of butter and the raising of cattle, and introduced organizations of coöperative creameries and slaughter houses. The high schools have exercised a great influence in making this possible, and many believe that without their instruction it could not have been brought about.

The people's high schools have always striven to develop and perfect gardening and farming, the principal industries of Denmark. They encourage and assist agricultural schools which are often grouped with them as at Lyngby. These agricultural schools give instruction on every phase of agricultural or rural life that will be of benefit to the country people, including country mechanics. Courses of from five days to six months are given in them at small expense. In all these movements the people's high schools contribute a stimulus and support. If you ask a Dane which is the most important vocational school in Denmark he will say "the people's high school," although they do not give vocational instruction per se at all.

The principal thing, however, that these schools have contributed is the new spirit which has been awakened in the Danish farmer. This spirit they seek to maintain through the founding of high school associations, high school homes, lecture associations, auditorium halls, and gymnasiums in the parishes in which they are situated.

The Danish farmers have been called the best-informed in the world. Distinction of class or rank among them is disappearing more and more; and not only among them, but generally throughout Denmark, there is not so deep a gap between the educated and uneducated as in many other countries. The suspicious reserve which in many places is so characteristic of the country people, is no longer characteristic of the Danes; they are on the whole open-minded and democratic.

"But the most important thing," as Povlsen says, "is

the influence upon the religious and moral feeling of the population." One of the most vigorous opponents of this type of school has said: "We must admit that immorality disappears where the people's high school exists. In social circles where the high school has acquired influence, one finds neither drinking nor gambling, nor the other forms of immorality. Still, one must not suppose that among the pupils a Puritanical severity rules. They love dancing, sport, play, and all other recreations." In consequence of the awakening and inspiring influence of the people's high school, one finds a much happier, more intimate, finer, and more conscious family life.

Finally, according to Dr. Norregaard, whereas the cultural schools have created a dislike for manual labor in place of the natural love for it, it is undeniable that wherever the influence of the people's high schools has been most strongly felt, this dislike has given way to respect and liking. No work that ought to be done is contemptible to the man trained in a people's high school.

"Grundtvig is a monumental figure in the Danish cultured and spiritual life," says Madsen. "No one has left behind him such deep and broad traces on Danish life as he; and the life of no other Dane has borne such rich fruit and is still so living among the people.

"He lived and worked among his people under five kings. He reproved them when they sank into frivolity and stupidity, inspired them to action in time of danger, comforted them in misfortune and healed their deepest wounds.

"His life was long and rich in achievement and activity, and continually and untiringly battling for everything that he regarded as right. His name is united for all time to the history of Denmark and is becoming widely known beyond the limits of his own country."

The schools of Grundtvig have shown the value of liberal education as a factor in the vocational life of a country. These people's high schools have never loomed large in the life of the towns or cities of Denmark, but they have transformed the country life, so that here alone of the

civilized world the city is not gaining on the country. This is the triumph of the people's high schools. They are a moral and religious achievement almost without parallel in modern times.

CHAPTER III

AGRICULTURAL INSTRUCTION IN DENMARK

Growth of the Movement

DENMARK, like Holland, is a land of small holdings. Although its area is less than 16,000 square miles—not much more than a quarter of Illinois—in 1895 it contained, besides more than 2,900 estates and nearly 72,000 farms, a population of about 160,000 living on small plots of ground.

The thoroughly domestic character of the rural population is shown by the fact that about 83% of it, according to statistics taken in 1890, consists of families working together on their own land, while only about 17% is made up of those who are working for others.

The significance of these facts appears in connection with the rise of agricultural education. In no other country of the world is this seen to have been, all along, so largely due to the striving of the people themselves.

The Apprentice System

The first step towards a formal training in agriculture tended, at the same time, to break down the sharp mediæval distinctions between the landowner and the servant who lived on his land and was forced to work it for him. This was the organization, in 1769, by the Royal Agricultural Society of Denmark, of the apprentice system for farmers' sons, which still exists, and is the chief method of giving practical training in agriculture.

According to this plan, the boys are sent to work for three years on large farms in different parts of the country—usually a year on each farm — in order that they may have the supervision and advice of expert agriculturalists.

AGRICULTURAL WINTER SCHOOL, LYNGBY, DENMARK

AGRICULTURAL MUSEUM, LYNGBY, DENMARK

HISTORICAL MUSEUM OF DAIRY UTENSILS, DENMARK

If the apprentice boards with the farmer's family, he pays a small fee for the first year, but if he already knows something about country life and work, he often gets a small salary from the beginning; in other words, a boy from the city may be apprenticed to a farmer, but a premium is paid for the service of a country boy whose experience makes him immediately of more use. The apprentice takes part in all the farm work, and his activities are supervised and controlled in several ways by the Society itself. For one thing, he must keep a diary of his work and send it in for inspection at the end of each year.

By 1913 about 2,400 young men had been trained in this way.

The apprentice system was afterwards extended to include special training in dairy work, herding, draining, irrigation, and the cultivation of root crops.

It is interesting to note that at Christiania, in Norway, this Danish system of apprentice training in agriculture has been combined with theoretical teaching in a winter school. The practical course consists of work for one and a half years (two and a half if the pupil has had no previous experience) on the farm of a man whose ability is recognized, and the theoretical course consists of thirteen months of study during two winters at the school itself.

This unique plan of teaching has been in operation since 1886 and seems to be working successfully.

Agricultural Associations

At the beginning of the nineteenth century the tendency towards organization and coöperation, which is the most noticeable feature of Danish rural life today, began to manifest itself in the formation of the first local agricultural societies. By 1913 there were 119 of these associations. A further stage of development was reached when the Royal Society and the local bodies began to work together. Machinery for this was provided when the Royal Society, in 1872, began to allow half of its directors to be elected by the local societies which were members of it.

Since that time the provincial societies have been combining in groups to make joint associations, which work together and represent a large section of the country, as, for instance, The Association of Jutland Agricultural Societies.

Finally, at the beginning of the present century, the "small farmers," *i.e.*, those who own or rent only a few acres, began to form organizations of their own; and by 1913 there were no less than 830 of these local societies of small landholders. These are organized into five provincial associations; and these, in turn, form a united body called the "Associated Danish Associations of Small Farmers," which, in negotiations with the Government or with various institutions, represents and acts for them all.

Similarly, there are series of organizations to promote all the special branches of agriculture, such as dairying, breeding and care of animals, poultry raising, and so on. Some idea of the extent of the specialization and the magnitude of the movement may be seen from the number of breeders' associations, which in 1913 was as follows:

Horse breeders	267	societies
Cattle breeders	1,072	"
Swine breeders	240	"
Sheep	104	"
"Control associations" (for testing cows)	592	"
Total	2,275	

In a country, not a quarter as large as our state, there are, besides the associations of men interested in breeding alone — nearly 2,300 of them — and proportionate numbers for the other branches of agriculture, many organizations for insurance and loans, to say nothing of several thousand coöperative production associations.

While the coöperative associations are commercial in their aims, the others are primarily patriotic and educational; that is, they work for the welfare of the country. One of the most practical forms that this work takes is the founda-

tion and maintenance, not merely of technical agricultural schools, but of the so-called "people's high schools," the chief object of which is to perpetuate the spirit of patriotism and intelligent cooperation that led to their establishment. It was not until 1892 that the Government began to subsidize these private enterprises in educational matters.

People's High Schools

The idea of the "people's high school" can be traced back to the great educator, Bishop Grundtvig, who, during the first half of the nineteenth century, promulgated the theories that have revolutionized the social and intellectual ideals of Denmark and given her once more a worthy place among the nations of Europe.

The principle on which Grundtvig's high schools were founded is this: That the transition years between childhood and manhood are the least favorable for intellectual influences, and indeed for intellectual activity, and that the years from 18 to 25 are the period when young people are most open to intellectual influences and most receptive. Grundtvig held that childhood should be regarded as one stage of development, and that the education given during that period should then be allowed to ripen during the years of adolescence, until the child had become a man, and had passed through a time of practical experience, and that then only should begin a new period of preparation for life. And this preparation should be not book-learning, but instruction that would bring inspiration into the daily lives of the common people and make them worth more to themselves and to their country.

The first "people's high school" founded to carry out Grundtvig's ideas was the Farmers' High School established at Rödding in 1844; but it was not until after the disastrous end of the war with Germany, in 1864, that the theory of educating the masses of the people towards a national ideal took deep root and spread. Between 1844 and 1864, 11 such high schools were founded; between 1864 and 1874, 43 were added, and between 1874 and 1904, 54 others,

making a total of 98 — all within a little tract of land which, if not broken up by the sea, would measure less than 130 miles in length and breadth.

Agricultural Counsellors

Another force in the education of the Danish farmer introduced by the agricultural associations is the work of the "agricultural counsellor," whose business it is to advise adult farmers, to make experiments, to give lectures and demonstrations, and to conduct excursions for the purpose of studying agricultural methods in different parts of the country.

The first of these counsellors was appointed by the Royal Agricultural Society in 1862 to act as adviser in dairy work. He trained several assistants, who soon received similar appointments from local agricultural societies. In 1876, a counsellor was appointed by the Royal Agricultural Society to give advice on the breeding and care of animals, and in 1882, one for plant culture. At the end of the eighties the State took up the good work, appointing a counsellor for agricultural chemistry, two counsellors for plant culture, four for the breeding and care of animals, four for dairy work, two for agricultural machinery, one for horticulture, one for plant pathology, one for agricultural and forest zoölogy, and two to look after Danish agricultural interests abroad (in England and Germany). The State also began to contribute towards the salaries of counsellors employed by associations. There are now more than 100 of these men employed both by the State and by agricultural societies to educate and help the adult farmer.

Survey of the System

The Danish system of agricultural education today, then, includes four features:

(1) The apprentice system, by which boys who have completed the elementary school system work for three

years on the farms of experts in order to get practical experience.

(2) The people's high schools, which all young people of eighteenth or more are urged to attend for one season. For the boys there is usually a course of five or six months during the winter; for the girls a three-months' course in summer. While agricultural instruction is given in some of these schools (not all), their main purpose is to inculcate a love of home and country.

(3) The special agricultural schools, which are recommended *after* a course at a people's high school.

(4) The agricultural counsellors, whose work supplements that of the schools.

The Agricultural College at Copenhagen

The Danish system of agricultural schools is planned on the hypothesis that the students have spent a winter at a "people's high school," and that the teachers have been trained at the Royal Veterinary and Agricultural College in Copenhagen, which was founded in 1856 as a State institution for advanced study in agricultural subjects.

It trains farmers, gardeners, foresters, veterinaries, and surveyors. It had 166 students in the year 1910–11. The course in agriculture consists of a general course of twenty months, and four "extension courses" of twenty months each.

Anyone may enter the school as an "extraordinary student," but those planning to take the examination at the end of the extension courses must qualify by taking an entrance examination. Usually about half the students receive free instruction and half of these receive scholarships which pay them from five to six dollars a month. The course of instruction includes the usual subjects taught in an agricultural college. The so-called "extension courses" provide an opportunity for specializing in the various departments of agriculture. In this college are trained most of the teachers in the agricultural schools of Denmark.

Summary of the Agricultural Schools

A summary of the other schools in the kingdom that give agricultural education, from "A Short Survey of the Danish Agriculture," published by the Royal Danish Agricultural Society in 1913, appears in the following table:

	Number of Schools	Length of Courses in Months	Average Number of Hours		Number of Students
			Professional Subjects	Natural Sciences	
a. Agricultural schools proper	13	5–6–9	460	262	1014
b. Agricultural schools for small lot holders ((Husmaend)	3	5–6	323	184	271
c. Dairy schools	2	4–8	407	260	138
d. Horticultural schools (including practical instruction)	3	5–12	414	345	63
e. People's high schools with special courses in agriculture	3	5	226	107	89
f. People's high schools without special agricultural courses, but giving more than 50 hours of agricultural instruction to the male students	35	5	106	82	1341

Only one school, the Classenske Agricultural School at Naesgaard, which has a course of seventeen months, attempts to teach both practice and theory.

In 1910–11, the total enrollment in agricultural schools and people's high schools was 4,945 men and 3,148 women, making a total of 8,093.

The Agricultural School at Dalum

Of the agricultural schools proper, the one at Dalum is typical. It was opened in 1886 by Jorgen Petersen as a private school for agricultural instruction. Since his death in 1908 the school, with the grounds adjacent, has been managed by a small board chosen by two associations, one composed of old students of the school, the second of other friends of the school. During the 26 years between 1886 and 1912 the school has given instruction to 4,267 students, of whom 3,198 were general farmers, 652 dairymen, and

47 "control assistants." In January, 1914, there were about 140 in the general agricultural department and 45 in the dairy school, taught by nine regular teachers, seven of whom were graduates of the Agricultural College of Copenhagen. The exceptions were the director himself and the teacher of gymnastics. Many special lectures are given during the year in science and technology as well as in subjects of general interest.

The Dalum school offers the following courses: (1) Courses for farmers: (a) a six-months' course, from November to May; (b) a nine-months' course, from November to July; (c) a three-months' course, from May to July; (2) course for dairymen, eight months from September to April; (3) course for "control assistants," one month, in October. The nine-months' course for farmers is merely the six-months' course plus the three-months' course, but they are scheduled separately, as students from other schools of agriculture and from other classes of this school may wish to enter for the three-months' supplementary course.

Students admitted to this school must be ineteen years of age and must have had several years' experience in practical farming and considerable knowledge of the usual elementary school subjects. Students are urged to prepare for admission by taking a winter course in one of the "people's high schools."

The subjects of instruction are chemistry, physics, botany, mathematics, drawing, Danish, agricultural accounting, gymnastics, history of agricultural development, geology, dairying, common business practice, study of agricultural tools and machines, cultivation of plants, and breeding and care of domestic animals. Of course these are all studied in their practical relation to agriculture —time would not permit anything else even if it were desirable. The students, in a word, are studying agriculture and such other subjects as are related to it. During the first months in Dalum the students are expected to spend their evenings in general reading, and throughout the course they attend lectures and discussions on history, social

economy, and so forth, given by the teachers themselves or by prominent men from other institutions.

The method of instruction is by lectures, laboratory work, and quizzes. Textbooks are used to some extent, but not nearly so much as in American schools. Every lesson hour I saw began with a song from a hymn-book containing historical, patriotic, and religious songs, without the music. The students in classes of from 45 to 140 would all sing the air, without accompaniment, through seven or eight stanzas, reciting the achievements of Danish great men, and then settle down to—perhaps—a lesson on fertilizers. The teachers explained to me that such a song brought the boys together in spirit as they were in body, and led to better attention and better work. I believe they were right.

Most of the students have to content themselves with the six-months' course, as work on the farm begins about May first. Some, however, wish to pursue their studies during the spring months when the practical application of the theory they have been taught during the winter, can best be made. As students of former classes and other institutions may enter at this point, a little time is given to general instruction and discussion. Some of the work in the summer term is thus described in the school course of study:

Business calculations, making estimates, laying plans for the transaction of business connected with farming.

Communication of the results of the latest experiments or lectures on such subjects as are of special interest to present-day farmers.

Study of wild plants, with lectures and practice in distinguishing them; special stress upon knowledge of injurious weeds and ways of combating their growth.

Practice in recognizing the most commonly occurring poisonous plants, injurious animals, and parasitic fungi, in the various stages of their development; methods of combating them.

Study of the most important cultivated plants, races, and species.

Exercises to enable the students to recognize the most important grasses in bloom and not in bloom, with study of the various plants found in a certain field; in connection with this study, the subject of the restoration of exhausted grass-fields is taken up.

Practice in seed-determination; use of and most advantageous ways of procuring seed.

Exercises in qualitative analysis, leading to a knowledge of the most important materials for fertilization and fodder.

Carrying on experiment plots to illustrate the reproduction and development of plants.

Visits to good droves of cattle and well-cultivated fields in Funen.

Course for Dairymen

The course for dairymen is eight months in length, beginning in September. A special lecture hall and special chemical and bacteriological laboratories have been provided for this department, which is, to a very large degree, an independent school.

The course of study includes chemistry, physics, applied mechanics, bacteriology, treatment and care of domestic animals, theory of dairying, mathematics, keeping accounts, practical exercises in investigation of milk, drawing, writing, and gymnastics. The methods of instruction include lectures, quizzes, and practical exercises in the laboratory, creamery, and dairy barn.

Control Assistants

It is the business of the Danish "control assistants" to watch very carefully the methods employed by the members of the coöperative dairies in order to keep up the standard of butter sold by them. This requires careful training such as is given in the more important dairy schools. The courses in Dalum are given to able young men and women in the month of October. These persons must have previously taken a course in an agricultural or other dairy

school. They are required to have, on entering, considerable practical knowledge and skill in caring for cattle, a reasonable skill in writing and mathematics, and maturity enough to be able to profit by the instruction.

The instruction comprises;

The weighing and testing of milk in the barns.

The use of Dr. Gerber's apparatus for determining the amount of butter-fat in milk.

Practice in keeping accounts of the value of the product of individual animals, taking into consideration food consumed and milk and butter produced.

Practice in the various systems of accounting used in the dairies.

Lectures on milking, qualities of milk, feeding of stock, etc.

The Dalum school has an extensive and valuable equipment for carrying on its work, consisting of:

Laboratories for chemistry and bacteriology and for investigating various agricultural and dairy products and auxiliary materials used in dairies.

A collection of physical apparatus, a botanical, an anatomical, a geological, and a zoological collection, and a collection of manuals and textbooks on dairy work.

Instruments and apparatus for surveying, for determining the butter-fat in milk, for microscropic investigations, and for experiments in plant and seed culture.

An exhibition ground.

An agricultural museum illustrating by means of tools and machines the historical development of agriculture and dairying.

A farm of about 100 acres, carried on by practical farmers, so that students of the school can observe the work of managing a model farm.

A stock of cattle, including about thirty-five cows, besides young cattle, and about 100 hogs, by means of which instruction in the care and feeding of these animals is illustrated for the students.

A practical dairy in which, in addition to the milk from

the school farm, milk purchased from adjacent farms is made into butter. This dairy is equipped with the best dairy machinery, run by steam or electricity, and provided with apparatus for investigating milk.

A three-acre field for exercise and games.

The expenses of the students are small, varying in the different courses. In the six-months' course the expense for room, board, and instruction is about $90. Students pay by the month on a graduated scale, so that the last month costs only about half as much as the first. This encourages them to complete the course. They pay extra for light and heat, books, paper, medical attendance, and the use of the school bathrooms. A certain number, however, in all the courses may receive aid from the State or from the Royal Agricultural Society to the amount of about $8 per month.

The School for Small Farmers at Odense

The school for small farmers near Odense is one of three of the kind in Denmark. In 1907 the coöperative associations of small holders in the diocese of Funen met and decided to establish a school owned and controlled by themselves, and a year later, the school at Odense was opened. From the beginning it was successful. It now has about ninety students in courses varying from six days to five months. The school is managed by a board of directors composed of the presidents of the coöperative associations of small farmers of Funen, Seeland, Jutland, Bolland-Falster and Bornholm, the director of the Small Farmer's Loan Association, small holders in the neighboring parishes, and the director of the school. It receives State aid to the amount of about $750 per year in addition to amounts granted to students in attendance.

The school aims to provide both general and technical instruction for its students, male and female, with a view to enabling them to fill their places, not only as farmers, housewives, and mechanics, but as citizens of the commonwealth. Thus it tries to secure more economic independence for the small farmers, by showing them what can

be done with the Danish soil by the thoughtful application of science to agriculture. It works for the extension of such knowledge as will assist the economic development of agriculture by educating the small farmer and his wife and the country mechanic and his wife. Finally, it attempts to provide that general knowledge and culture which will elevate the social life of man, and, in a measure, satisfy the legitimate craving of every man and woman to participate in the spiritual life of the race. This is an ambitious program, but the school strives to follow it. In every long course the morning hours are devoted to general education, the afternoon to technical subjects. Even in the short courses one hour a day is given to general education.

The school offers the following courses:

A five-months' winter course for men, from November to March.

A three- and a five-months' summer course for women, beginning in May.

A one-month's course for men and women as "control assistants."

A five-months' winter course for country mechanics.

Numerous short courses of from eight to fourteen days' duration, for both men and women.

Under this last head are advertised:

Two-week courses for men in general agriculture, domestic animals, gardening, and agricultural accounting, in January and February.

Two-week courses for men in accounting, social economy, Danish, and agriculture, in March.

One-week course for men in gardening, poultry-raising, bee culture, accounting, and small farming, in July.

Two-week courses in household economics, gardening, poultry-keeping, and bee culture, in May, July, September, and January.

One-week course in household economics, gardening, and poultry-keeping, in July and September.

During eleven out of the twelve months of the year short courses are in operation in which people who have trouble

with their bees, poultry or any other phase of agriculture, can receive assistance. The country communes generally grant aid to persons desiring to take these courses.

In the longer courses both men and women receive instruction in such general subjects as the Danish language and literature, history, sociology, mathematics, chemistry, physics, botany, hygiene, and gymnastics.

The boys receive, in addition, instruction in agriculture, including such subjects as the composition and preparation of the soil, use of seed, succession of crops, eradication of weeds, use of fertilizers, natural and artificial, cultivation of plants, building, domestic animals, cattle raising, feeding, judging of cattle by external appearance, milking, agricultural accounting, surveying, gardening, poultry raising, rabbit raising, and bee culture.

The girls, besides the course in general subjects above mentioned, receive instruction in cooking, gardening, theory of nutrition, household accounting, knitting, darning, patching, fine handwork, making of dresses and undergarments, cleaning, laundry work, poultry raising, keeping of bees and rabbits, and other subjects.

An opportunity for a course in practical work on the school farm is given to boys who have taken the five-months' winter course. The school runs a model "small farm" of seven acres, supplied with six cows, a few pigs, and other stock, showing that it is possible for a family to make a good living in similar circumstances. If the small farm needs horses or other equipment for demonstration purposes, these are supplied by the "large farm" and charged to the account of the small farm.

The "large farm" consists of twenty-four acre, with horses, wagons, and farm implements, about twenty cows, and a number of hogs, poultry, and so forth, to show the management of a larger piece of ground. About fourteen acres more are laid out in gardens and orchards, every girl having a small garden to manage during the summer courses.

The buildings are good and the teachers and students are thoroughly interested in the work.

The other agricultural schools in Denmark are organized along the same lines.

Summary

In Denmark we have the working out, in a thoroughly satisfactory way, of the principle of democracy as applied to education. Bishop Grundtvig inspired men of the people to found people's high schools on their own initiative. These schools awakened the intelligence of the farmer class and made the farmers themselves realize their own need of technical instruction. The work of the agricultural counsellors deepened and spread this conviction. These two influences, working together, led to the establishment of two classes of agricultural schools, those for farmers in general, of which Dalum is an example, and those intended to meet the special needs of the small landholder, such as that at Odense. As the spirit of coöperation developed, associations began to found schools, and finally the State took up and supplemented the work, chiefly by means of subsidies to the schools and by the appointment of more agricultural counsellors.

The plan works splendidly because it has grown gradually out of the needs of an intelligent, high-minded, and ambitious people, and has been adapted to meet those needs in the most practical manner.

ALBERT AGRICULTURE COLLEGE, GLASNEVIN, IRELAND

CHAPTER IV

AGRICULTURAL INSTRUCTION IN IRELAND

Organization of a Special Department

THE present organization of agricultural and technical instruction in Ireland dates from the year 1900. It is the result of the work of a committee headed by Sir Horace Plunkett and composed of Irish members of Parliament and other Irishmen of all shades of political opinion. They secured the passage of the Agricultural and Technical Instruction Act in 1899. The Department created by this Act is so constituted "as to be representative at once of the Crown, the recently created local government bodies of the country, and those classes of people with whom its work is chiefly concerned; and to give to this authority the function of aiding, improving, and developing the agriculture, fisheries, and other industries of Ireland, in so far as may be proper to such a Department, and in such manner as to stimulate and strengthen the self-reliance of the people."

The Department has a paid staff with a central office in Dublin. It consists of a president who is the chief secretary for Ireland, a vice-president, a secretary, and two assistant secretaries (one for agriculture and one for technical instruction), with a staff of assistants. The two assistant secretaries, George Fletcher for technical instruction, and J. R. Campbell for agriculture, are the real expert heads of their respective sections, and practically administer the agricultural and technical schools. There has been placed at the disposal of the Department and the boards appointed to work with it an endowment which in 1912 amounted to about $1,000,000.

Immediately after the organization of the Department, steps were taken to establish, in accordance with the pro-

visions of the Act, a Council of Agriculture, an Agricultural Board, and a Board of Technical Instruction; and authority was given to the County Councils and to the County Borough Councils for the appointment of members of these bodies. These boards advise and coöperate with the Department.

The Council of Agriculture consists of 104 members, 68 appointed by the County Councils and 34 by the Department. The president and vice-president of the Department are ex-officio members. The Council of Agriculture elects eight members of the Agricultural Board and four members of the Board of Technical Instruction. The members of the Agricultural Board, representing each of the four provinces of Ireland, constitute separate committees of the Council, styled provincial committees. Each of these provincial committees appoints two persons to be members of the Agricultural Board, and one person to be a member of the Board of Technical Instruction. The Agricultural Board is therefore composed of twelve persons, eight appointed by the provincial committees of the Council of Agriculture, and four by the Department. The members of the board hold office for three years.

"That portion of the Department's endowment fund intended for agriculture, rural industries, and sea and inland fisheries, with the exception of a special sum of $50,000 for sea fisheries and certain specified capital sums, must be administered by the Department with the concurrence of the Agricultural Board. In addition to their control of all such expenditure, this board acts as an advisory board to the Department in all matters submitted to them by the Department in connection with the purposes of agriculture and other rural industries."

The Board of Technical Instruction consists of 21 members, 15 appointed by local authority, one nominated by the Commissioners of National Education (elementary schools), one by the Intermediate Education Board (secondary schools), and four by the Department. The duties of the Board of Technical Instruction are analogous to those of the Agricultural Board.

The Consultative Committee of Education consists of the vice-president of the Department as chairman, and one person appointed by each of the following bodies: the Commissioners of National Education, the Intermediate Education Board, the Agricultural Board, and the Board of Technical Instruction. The function of this committee is to coördinate educational administration. Its action is purely advisory.

The $1,000,000 per year provided for the support of the Department is derived from certain funds placed at its disposal by the Government, and by local taxation.

The work of the Agricultural Board is not confined to providing technical instruction for farmers, but includes also scientific investigations, surveys, and experiments related to agriculture, fisheries, and other industries. A considerable portion of the funds of the Department is spent in these investigations, which cover a very wide field of work. The Department, however, look upon educational work as the most powerful and permanent means of promoting the welfare of Ireland. However valuable and extensive the investigations and surveys may be, they cannot by themselves produce deep and abiding results without a system of education that will train the intelligence and the will, and give to the individual the skill and resourcefulness that can be acquired in no other way. The Department feel that "however imperfect their forms of effort may be or whatever the conditions which may prevail in Ireland, if the people be placed in full possession of the benefits of such an educational system they will have the instrument of their own salvation in their hands."

The development of the scheme for agricultural instruction has been summarized by the assistant secretary, J. R. Campbell, in a memorandum published in 1907. This memorandum gives a very clear account of the experiment between the years 1900–1907 and is quoted here at length, with additions from the Twelfth Annual Report of the Department, which brings the work down to 1912.

Initial Procedure

The Agricultural Branch of the Department of Agriculture and Technical Instruction for Ireland was started in the autumn of 1900. The first duty of the staff was that of attending meetings of County Councils, explaining to them the provisions of the Act, the steps to be taken to put it into operation; obtaining and considering suggestions both in private and in public as to what the Department should do for agricultural development, and making acquaintance with the people whom the Act was intended to benefit. Advantage was taken of these visits to study the peculiarities of Irish agriculture in respect to the size of the holdings, the farm buildings, the tillage of the land, the crops grown, the class of stock raised, and the condition of dairying, horticulture, and poultry-keeping. Regard was had also to the social position of the farmer himself, his business methods, capital, general and technical education, and to some extent his aspirations.

Conclusions Arrived at

The conclusions arrived at after this preliminary study of the conditions under which the Department had to work may be summarized as follows:

(1) That the most important work which the Department had to perform was that of laying the foundation of a permanent system of agricultural education. The immediate introduction of a system of agricultural education such as exists in other countries was seen to be impracticable, as in the first instance the conditions of agriculture in Ireland and the circumstances of the farmers differed from those of most other countries, particularly with respect to the size of the farms, the ability of the farmer to pay fees, the desire of most young men to leave the land, the desire for an agricultural education, and the backwardness of tillage in some districts; while, in the second place, no provision had been made in Ireland for the training of teachers.

(2) That in the application of the Department's Endowment to aid in the development of agriculture it was

desirable as far as practical to work through the local authorities. It was further considered desirable to commence with a subject in which everybody could take part, and which everybody understood—namely, the improvement of live stock.

(3) That a large number of the proposed projects on which the country desired the Department to embark would in the first instance have to be undertaken by the Department's officers themselves, afterwards gradually transferring the work and the funds necessary for carrying it on to the local authorities.

Division of Work

The work of the Agricultural Branch may be divided into—

(a) That which is administered jointly by the local authorities and the Department, and

(b) That which is administered by the Department directly from the central offices.

Generally speaking, when the work is such that the county can be made the unit for the purposes of administration, and particularly where such an arrangement would enable each district to receive benefits proportionate to its contribution, the administration of the schemes is delegated to the local authority; such, for example, is the procedure adopted with schemes for encouraging improvement in live stock and schemes of itinerant instruction in various branches of agriculture. On the other hand, work for which the county cannot be conveniently made the unit, and which does not apply equally to the whole county, is administered directly from the Department's offices, such, for example, as the investigation of special outbreaks of diseases of stock, the encouragement of improvement in the management of creameries, and a variety of other work and investigations . . .

Functions of Local Authorities

The local authorities are the County Councils, of which there are thirty-three. Each Council, however, for the

purposes of the Department's work, appoints a Committee of Agriculture composed partly of members of the Council, and partly of other persons. To this committee the Council usually delegates full powers, subject to the approval of the Department, for the administration of the funds placed at its disposal. The County Council alone can raise a rate for the purposes of the Act. In some cases this rate is 1d. in the pound, in others ½d.

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The amount raised by the county rate is usually transferred by the County Council to the County Committee to be applied by them, subject to the approval of the Department, partly to schemes of agriculture and partly to schemes of technical instruction. In a few cases the amount to be spent on agriculture and on technical instruction respectively is specified by the County Council. In the majority of cases, however, it is left to the County Committee to decide the proportions. In the first year 31 out of 33 County Councils did so.

Relations with Local Authorities

The relations between the Department and these committees are very satisfactory indeed. In the first years, when the procedure was not well understood, there were administrative difficulties and delays; but all these have been largely, if not altogether, overcome, and an excellent understanding has for some years existed between the leading members of the committees and the officers of the Department, who are constantly in conference, either at the local meetings or at the offices of the Department, to discuss the details of and the arrangements for carrying out the work. Individuals have felt aggrieved owing to the action of the committee itself, or of the Department, but this is inevitable where public funds are distributed among farmers to encourage improvement in their methods. So far as is in their power the Department have fairly met the wishes of the committees. Not only are the committees in constant communication with the central offices, but each

committee is invited by the Department to submit its views on the working of the schemes before the commencement of each agricultural year. Suggestions made by County Committees have not only been considered, but, in the great majority of cases, have been adopted. If a County Committee considers itself aggrieved by some action of the Department, the committee can have their grievance ventilated through the Council of Agriculture, a body appointed especially for this purpose, and to whom the Department must answer if it ignores public opinion.

The amount of work done and money expended by the County Committees has each year steadily increased, and the quality of the work also has improved and is improving. With the exceptions already noted, every County Council has annually raised a rate and appointed its committees, who have carried on successfully one or more of the schemes. These schemes up to the present comprise improvement in the breeds of cattle, horses, asses, and swine; itinerant instruction in agricultural subjects; prizes for cottages and farms; subsidies to live stock shows; field experiments and demonstrations with manures and seeds; systematic instruction in winter schools of agriculture; instruction in poultry-keeping, including improvement in the breeds of fowl, and the fattening and marketing of poultry; instruction in horticulture, including the purchase and distribution of trees at cost price; instruction in bee-keeping, and instruction in home butter-making.

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Work Administered Jointly by Local Authorities and the Department

A Year's Work

The agricultural year commences in autumn. Early in summer — in June usually — the Department circularizes all the County Committees, inviting their views on the work of the previous year. The views of the Department's

inspectors who have been in touch with the leading members and with the officers of the committees are also obtained. These suggestions are then considered by the Department, and where there are any national interests to safeguard and where expert advice is helpful advisory committees of experts are called in to assist the Department in their deliberations. The advisory committees are those dealing with horses, cattle, and swine, flax, tobacco, and forestry. The views of the County Committees are laid before these committees, and an outline program is then prepared. Unless in very special cases all details are left for each local authority to settle as it sees fit.

Early in August these outline schemes are explained to, and laid before, the Agricultural Board, with a statement of the amount of money which it is estimated will be required from the Department's funds (1) to meet the cost of central administration, and (2) to meet the Department's contribution to the funds of the County Committees. When the necessary funds have been voted by the Agricultural Board a conference at the Department's offices of secretaries of County Committees has usually been held to discuss any new provision in the schemes, and to arrange dates for meetings of the committees which are attended by the Department's inspectors for the purpose of assisting in arranging details of the program and finances for the ensuing agricultural year. As soon as each County Committee has decided on the schemes which it proposes to put into operation, and has provisionally allocated funds therefor, the secretary notifies the Department, who then intimate their approval as well as the maximum of their contribution for the year. Where the County Committee and its secretary are alive to the interests of the county, the work is usually in full swing by October, except, of course, such sections of it as depend on the seasons. The appointment of local or district subcommittees, who see that the district they represent takes full advantage of the schemes, is a most important factor in insuring the success of the work. The Department have urged the appointment of such sub-

committees to assist the statutory committees, and hope that still more use will be made of them in future years.

County Committees of Agriculture meet, as a rule, once a month. As already stated, a representative of the Department always attends the first meeting, and subsequent ones as often as possible.

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Agricultural Education

Of all the agricultural problems which the Department have had to solve, that of gradually leading Irish farmers to appreciate an education for their sons, who are to succeed them, has been the most difficult, and has received the most attention. It did not require a prolonged study of the conditions of agriculture in Ireland to show that there is good reason why it would be impracticable to at once introduce methods which have proved successful in other countries. It is unnecessary to describe the provision made in Ireland for agricultural education before the creation of the Department of Agriculture. Suffice it to say that up to that time such education was provided by the Commissioners of National Education. At one time agricultural education was given at a large number of public institutions, and in national schools. At the time of the formation of the Department, for one reason or another, all these institutions had been abandoned, with the exception of the Albert Training Institute, Glasnevin, and the Munster Institute, Cork. Instruction had also been given in thirty-eight national schools by national teachers who had been trained at the Albert Institution, and who usually worked a farm in connection with the school. The Albert Institution and the Munster Institute were handed over to the Department, who were, however, precluded from giving agricultural instruction in national schools. The Commissioners had ceased to teach agriculture in these schools, and all, therefore, that remained of their agricultural operations were the two institutions referred to above. At each of these there

were two courses in the year, one for female and one for male students; hence the equipment was designed for teaching alternate courses of practical agriculture to young men and dairy work and domestic economy to girls. The scientific instruction at Glasnevin took the form of a number of lectures on chemistry, botany, zoölogy, and veterinary science by specialists from the city, who were not, however, agriculturists. There were no laboratories, and therefore no practical instruction in the sciences underlying agriculture. The course extended over a period of about six months. Attention is directed to these facts, as it will enable one to understand the difficulty caused by the want of trained Irishmen to enable the Department to immediately establish and staff agricultural institutions.

Another factor which has to be taken into consideration in devising a system of agricultural education is the fact that in Ireland there is an extraordinary desire on the part of young men of the country to escape from farm life. Their education is all directed toward fitting them for occupations of a wholly different character, and the brightest of the family receives an education often at the expense of the son who is to succeed the father. The occupier of the land himself is not always a man of education, nor can he be expected to appreciate the advantages of education except as a means of escaping from the land. To induce him, therefore, to make some sacrifice to give the son who is to succeed him in the holding a technical education suitable to his calling, it is necessary first of all to convince him of its advantages. It is impracticable to bring the farmer himself to school, and therefore the only way he can be brought into contact with the application of science to agriculture is by sending round instructors to give lectures in the evenings; to visit holdings during the day and discuss privately with the occupiers the various problems which confront them in their practice. Such an officer, if he is armed with a thorough knowledge of his business, both scientific and practical, rarely fails to convince a farmer of the fact that he would have been more successful had he received an agricultural

education, and that it is to his son's advantage that he should be given one. It is scarcely necessary to state that such work, however, is slow, and even in the most progressive countries requires patience and determined perseverance. It is a universal experience that the more highly educated, capable, and progressive the farmer, the more he appreciates technical education.

With the agriculture of Ireland in a backward condition, where the smartest sons forsake the land, where the holdings are often too small to be economically managed, where the farmer's financial resources are very limited, where a system of agricultural credit, often of the worst possible description, exists, and where the people have been taught that improvement of their land may mean an increase in rent, the reader will realize that the Department had very real difficulties to face.

In this connection one further aspect of the case may be given. There are in Ireland nearly half a million holdings, of which a quarter of a million may be taken as under twenty statute acres in extent. The owners of such holdings are, of course, quite unable to pay anything like the cost of a special education; all that can be expected of them is that they should contribute a small fraction of it. With these considerations before them, the policy of the Department has been—

(1) To provide at one central institution the highest form of technical education for the training of men who are to become teachers and specialists in agriculture. This has been done at the Royal College of Science in connection with the farm and college at Glasnevin.

(2) To provide at least one high-class agricultural college which would form a stepping-stone to men desirous of entering the Royal College of Science, as well as men, the sons of well-to-do farmers, who wish for an education to enable them to manage their own farms, and men who desire to become creamery managers, or who wish to have a special training to fit them as horticultural or poultry experts, stewards, land agents, or other occupations in connection

with agriculture. This has been done at the Albert Agricultural College, Glasnevin.

(3) To provide provincial institutions at which young men who can be spared from the farm for one year can be taken in as apprentices, taught agriculture, both practical and technical, at a fee proportionate to their means. This work, which had to be delayed until teachers were trained, is now in progress at three institutions, and the provision of others is in contemplation.

(4) To provide winter schools of agriculture where the sons of farmers could obtain technical training at small expense during the winter months, when they can best be spared from farm work. Twenty-eight such schools were started in the winter of 1906 in twelve counties where progress had previously been made with itinerant instruction.

(5) To provide one central higher institution for the training of women in the domestic economy of the farmhouse, and in work which falls to the lot of women to perform in connection with the farmyard; as, for example, dairying and poultry-keeping. This provision has been made at the Munster Institute, Cork.

(6) To provide for young women education in domestic economy and farmyard lore at residential and day schools. This has been done at a number of institutions, while the equipment of others is under consideration.

(7) To provide in each county, by a system of itinerant instruction in agriculture, horticulture, dairying, poultry-keeping, and bee-keeping, instruction and advice for farmers and their wives, sons, and daughters who cannot avail themselves of other means of acquiring information.

Thus the Department have laid the basis of a graduated system of agricultural education by means of which the youth who is inspired by the work of the itinerant instructor may be able to obtain education in the local winter school of agriculture, from which he may graduate to the provincial agricultural school, thence to the Albert Agricultural College, or the Royal College of Science, according to his circumstances and his education, and equip himself for the

highest offices in connection with agriculture which the country has to bestow.

One important aspect of the question should be mentioned in this connection; viz., that the education of the agricultural student must be accelerated when the influence of the teaching of practical science in the secondary schools provided under the Technical Instruction Scheme comes to be more and more felt. It may be taken for granted that the boy who has had a training in practical science in the secondary school will benefit more by his attendance at the lectures and demonstrations of the agricultural instructor, at the classes in the winter schools, and at the provincial institutions, than the boy who goes to these without this preliminary training.

Royal College of Science

As already indicated, the first duty of the Assistant Secretary on joining the Department, in August, 1900, was to study the state of agriculture in Ireland. His first official recommendation was that a Faculty of Agriculture should be established in the Royal College of Science in Dublin, and that scholarships should be provided to encourage young Irishmen to study there, and so fit them for work in connection with the Department's schemes. His recommendations to the Department under this head coincided with the views of the vice-president and the secretary. No time was lost in establishing the faculty. In October of the same year nine young men, all well acquainted with the practice of agriculture, were enrolled. Every year since then a fresh number of scholarships has been offered to the same class of students. Eighty-three men (1912) have been so trained, sixty-four of whom (1912) are now employed on the Department's program. It is hoped that all these men, with others to be trained in subsequent years, will do useful service to the country in the cause of agricultural education. These scholarships are awarded on the result of an examination which comprises English and another language, mathematics, and practical agriculture. The

scholarship entitles the holder to free education and a maintenance allowance of £1 1s. per week while in attendance at the college. The application for these scholarships was not at first all that could be desired. It has taken a few years for the youth of the country to realize their opportunities, and the opening which the Department has created for teachers of agriculture. At first applications were received from clerks, unsuccessful candidates for the civil service, students who failed to pass various professional examinations, e.g., church, law, medicine, and such like. As however, the program of the Department is becoming better understood, and the influence of the winter and provincial schools of agriculture is being felt, a much better class of candidate is coming forward year by year.

The course at the Royal College extends over three years (extended to four in 1912)—the session lasting from October to June. In the first year the subjects studied are chemistry, physics, mathematics, drawing; second year, botany, zoölogy, geology, with their application to agriculture; surveying and veterinary hygiene; third year, agriculture, agricultural chemistry, agricultural bacteriology, and engineering. . . .

The total number of regular students in 1911–12 was 141, besides 325 who attended special summer courses in 1912.

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Albert Agricultural College, Glasnevin

At the time this institution was taken over, two courses of instruction were given annually, one for women in dairying and domestic economy, and one in agriculture for men. The drawbacks to such an arrangement are obvious: the staff and equipment had to be duplicated, and a six months' course in agriculture is obviously too short for a high-class college. The Department, recognizing the need for at least one institution at which young men could receive a less expensive and less exhaustive course than that given at the Royal College of Science, decided to equip the Glasnevin

Institution partly as a preparatory school for the Royal College, and partly to meet the demands of those who are prepared to pay a fair proportion of the cost of their education, and who desire to fit themselves for an agricultural career.

The buildings, which had been erected about the year 1854, were almost worn out, and were not equipped in accordance with modern ideas. A scheme for their reconstruction and reorganization on the lines indicated was submitted to the Agricultural Board, who voted funds for the necessary alterations.

The farm consists of 170 acres, 112 acres of which are cultivated on an eight-course rotation with crops suitable to Ireland; the remainder is in pasture, on which are kept a herd of dairy cows and a flock of sheep. The farm is famous for its breed of large Yorkshire pigs, and there has recently been added a small herd of valuable pure-bred shorthorn cattle. The produce of both classes of stock is sold or given out on loan to breeders of pedigree stock.

The course now extends throughout the year, during which the students are taught English, mathematics, surveying, agricultural chemistry, agricultural botany, agriculture, both in the field and in the classroom, horticulture, butter-making, poultry-keeping, bee-keeping, and manual instruction in woodwork. The students devote half their time to indoor and half to outdoor studies. Instruction by a resident staff in well-equipped laboratories now takes the place of the former system of lectures by visiting masters.

Twenty-five free scholarships, entitling the holders to maintenance and education, are offered per annum. Farmers' sons pay £25 and others £60 per annum.

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The farm and institution, however, serve purposes other than those already mentioned. The gardens are employed for the training of young men, the best of whom eventually become itinerant instructors in horticulture under the local authorities. These are admitted as apprentices, and are selected on the result of an examination, due regard being

had to their previous knowledge of practical gardening; they do the work of the garden and orchards, and receive free instruction in the college. They are paid at the rate of from 18s. to 25s. per week, and reside outside. . . . The poultry department serves as a center for the breeding and distribution of pure-bred fowl in connection with the county schemes, and is being utilized for the grading up of egg-laying strains by the keeping of a register of eggs of individual birds. The farm also serves as a station where high-class sires are housed pending their distribution to the backward counties which require special assistance from the Department.

Agricultural Stations

The Albert Agricultural College is not, however, the type of institution which the Department would wish to see multiplied in Ireland. It is clear that one such place is necessary, but one should be sufficient for the requirements of the country. There is, however, room in Ireland for a type of agricultural institution where instruction less technical and more practical can be given. This need the Department have recognized, and provision has already been made for three such institutions—one at Athenry, County Galway; one at Ballyhaise, County Cavan; and one at Clonakilty, County Cork. As soon as these are properly equipped and staffed and the available accommodation is taken up, and qualified teachers become available, the intention is to start similar establishments elsewhere so far as funds will permit.

Admission to these institutions is confined to young men who are able to show the Department that they are to become farmers in Ireland, and that they have an immediate or early prospect of obtaining a holding.

For apprentices whose parents or guardians derive their means of living mainly from farming the fees are proportional to the aggregate tenement valuation of their holdings.

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The apprentices are boarded and lodged, as well as

educated. They are, however, required to do part of the work of the farm. The course at present lasts for one year. In addition to being taught practical field operations, such as have to be performed on a well-managed holding, the apprentices receive classroom instruction in English, farm arithmetic, surveying, book-keeping, and agriculture. They also study the methods of improving land, tillage, cultivation of crops, use and purchase of manures, seeds, and feeding stuffs, the management of pastures, dairying, butter-making, gardening, hedging, wood and iron work, etc.

At Clonakilty there is a mixed tillage farm of 350 acres. The Department have erected residential quarters for staff and apprentices, and stocked the farm. . . . The institution was opened in October, 1905, and eighteen students were enrolled; the number enrolled for the present session (1906–07) is twenty-three (1911–12: thirty).

At Athenry there are about 700 acres. When taken over by the Department almost all the land at this station was in grass, but it is now being gradually converted into tillage. (Twelve students were in residence in 1911–12.)

At Ballyhaise there are also about 700 acres of land, part of which is capable of being worked as a mixed farm. The mansion house on the estate has been altered to provide accommodation for about forty apprentices. It was opened early last year with twenty apprentices. Twenty-seven apprentices have been admitted to the 1906–07 session (1911–12: thirty-five).

Winter Schools of Agriculture and Agricultural Classes

The main reason offered by a farmer for not giving a good education to the son who is to succeed him is that owing to scarcity of labor he cannot afford to lose his services on the farm. There is a good deal of truth in this argument, but it applies more to the summer season than to the winter, and, accordingly, it was decided to start local winter schools or classes, in order that opportunities of acquiring education might be put within the reach of those who could not be

spared from the farm during the summer. These classes are being organized mainly in counties which have already had the service of an itinerant instructor in agriculture for two or more years. At first the Department organized these winter schools themselves; now it is sought as far as possible to place them under the administration of local authorities. As, however, the work is new, and as the local bodies have not had much experience of this form of education, the Department's officers have associated themselves very closely with the local authorities, and have, in the majority of cases, undertaken the actual work of organization and supervision. These winter schools differ somewhat according to locality, but the following is a description of the most common type. A classroom at some rural center, convenient to a village or railway junction, is secured; provision is made to have it warmed and lighted; and it is equipped with plain deal benches or tables and agricultural specimens, such as seeds and manures, feeding stuffs, grasses, and such like. Where the county itinerant instructor in agriculture is not available to teach the classes, the Department provide a special teacher for the course. The County Committee advertise the school, and offer to pay the traveling expenses of young men who will attend the school regularly. In some cases the student is supplied with a midday meal gratis. When a special teacher is employed, three two-day classes or two three-day classes are held each week during the course, which usually extends over twenty weeks, opening in October and closing in March. The number of pupils in each class is limited to twenty-four. The classes are held for five hours per day. The subjects taught are agriculture—soils, tillage, cropping, manures (natural and artificial), seeds, grasses, weeds, treatment of pastures, management of live stock, including winter dairying, valuation of manures and feeding stuffs; simple farm account keeping, mensuration, elementary chain surveying; and elementary science explanatory of the principles underlying ordinary farm practice. This instruction is given by the resident teacher, while lectures and demonstrations are

given on horticulture and poultry-keeping by county instructors, and on veterinary science by visiting teachers.

At one center where the class is held for five hours on five days per week during twenty weeks, a more extended course is given and laboratory equipment, which is considered unnecessary for the shorter courses already referred to, is provided. In this case a maintenance allowance of 15s. per week is made to pupils who, being unable to travel daily to and from their homes, find it necessary to reside at the class center.

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County Schemes of Agriculture

The work so far described has been in the main directed to the training of teachers and experts, and to the initiation of what is hoped will develop into a system of agricultural education which will meet the needs of Ireland if it is not unduly forced but allowed to grow naturally out of the existing conditions of agriculture, and out of the practical education which is being provided by local authorities. The education which is provided by local authorities is intended immediately and directly to help the occupiers of the land as well as cottagers, and to arouse in them a desire for a better education for their sons and daughters, without which it would be impossible for any system of agricultural education to prove successful. The operations of the local authorities are usually designated "county schemes." These provide for instruction by itinerant instructors—a form of education which has played an important part in the development of agriculture in many countries. The work is now under the immediate direction of the County Committees of Agriculture. The schemes are revised annually at the beginning of the agricultural year so as to give each local authority an opportunity of making suggestions for an improvement in the method of procedure, suggested by the experience gained during the year, or for the total rejection of the scheme if they are dissatisfied with it. At first, when the number of instructors available was very limited, and

when the committee and the public had no experience of such work, the Department themselves provided directly for work of this kind by sending round pioneer instructors. Each year, however, has seen a greater demand for instruction of this character, and as the demand increased and instructors became available, the direction of the work was gradually delegated to the committee themselves. They appoint the instructors, arrange their work, check and pay their locomotion expenses and the salaries of all, except in the case of the agricultural instructors, whose salaries are paid directly by the Department. The cost of these schemes is paid out of the joint fund; that is, the amount of the 1d. or ½d. rate provided by the County Council, and the Department's contribution, which is provided annually by the Agricultural Board after the schemes for the year have been placed before them and approved.

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Duties of the Itinerant Instructor

Briefly this scheme provides for the appointment of local committees of at least one itinerant instructor in each county.

His duties are as follows:

To deliver courses of lectures on agricultural subjects, such as soils, manures, seeds, pastures, crops and their cultivation, breeding, feeding, and management of live stock; to visit farms; to conduct such experiments and demonstrations in spring and summer as may be approved by the Department; to select suitable land for this purpose; to supervise the sowing of the seeds and manures and the keeping of the plots free from weeds; to weigh the produce, tabulate the figures, and prepare a report on the results; to assist, if required, in the teaching at agricultural classes established with the approval of the Department; to reply to letters from farmers seeking information; to advise farmers how they may avail themselves of the Department's live stock schemes and of the Department's seed-testing station; to make known the provisions of the Fertilizers and Feeding

Stuffs Act; to advise farmers how they can best avail themselves of all the schemes which may be adopted by the County Committee and by the Department, and how they may take advantage of agricultural organization; to report to the Department and to the County Committee regarding the progress of his work, either weekly or otherwise, as may be required; and generally to give his whole time to the work and do all in his power to further the interests of agriculture in the county.

The instructor may also be required to act as judge in connection with the scheme of prizes for cottages and small farms in a county other than that in which he acts as instructor.

The Department makes it a condition that this officer must have had a first-class training in technical and practical agriculture, not that he is required or allowed to give highly technical or scientific lectures or advice, but in order that there may be some guarantee that the practical advice which he tenders is based upon a sound scientific study of the problems which he has to solve and to prevent what has done so much harm to agricultural education elsewhere—the giving of empiric advice.

In 1906 twenty-three instructors were at work under the direction of the County Committees. These officers attended 1,169 meetings of farmers, at which they delivered lectures, and assisted in the subsequent discussions. The average attendance at these meetings was fifty-six. . . . In 1906 these instructors arranged and carried out 2,082 field demonstrations and 439 field experiments. It may be pointed out that a demonstration consists of one plot to illustrate a particular kind of treatment of the soil or method of growing a crop; the results are determined on inspection by the farmers themselves. Each field experiment, on the other hand, consists of several plots treated differently, and from which the crops are very carefully weighed and measured, and the results published and circulated. . . .

That the work of these instructors is not only popular, but effective, is proved by the fact that County Committees

which have undertaken it desire to continue the work, and have absolutely refused to part with their instructor, even for one year, to help other counties that have failed to secure one. It is shown also by the constant demand for advice of the instructor, not merely personally at the lectures and in the market place, but by private correspondence. The letter books of the instructors last year (1906) show that they had to give advice by letter in about 25,000 cases.

Results Reached by 1912

Secretary Campbell has shown that where possible the scheme of instruction is carried out through the County Committees of Agriculture. In other places the schemes are administered directly by the Department of Agriculture and Technical Instruction. In the report for 1911–12 the County Committees employed instructors as follows:

In Agriculture	43
In Horticulture and Bee-keeping	40
In Poultry-keeping	36
In Butter-making	33
Total	152

In seventeen counties the instructors in poultry-keeping acted also as instructors in butter-making. The total number of persons employed in the year 1911–12 was 135. The following table indicates the extent to which the services of instructors were utilized in connection with the other duties assigned them:

	Agriculture	Horticulture and Bee-keeping	Poultry-keeping	Butter-making
No. of lectures delivered	642	206	253	191
Estimated attendance at lectures	24,000	10,000	18,200	3,063
No. of classes conducted	76	Nil.	124	224
No. of students admitted to classes	1,405	Nil.	1,327	1,792
No. of visits to farms, gardens, dairies, etc	16,808	33,501	15,905	7,419
No. of demonstration plots laid down	2,113	354	.....	....

In 1911–12, one teacher was especially employed for these classes, in addition to the county instructors.

Under schemes administered directly by the Department there were employed in the same year a staff of 49 assistant agricultural overseers and four overseers, who were employed in giving individual instruction to small holders. The assistant overseers also gave instruction through the medium of field demonstration plots. In this year the number of these demonstrations carried out by them was 12,140. During the same year 2,182 visits were made to creameries by a staff of instructors especially employed for this work.

In 1911–12 there were in operation nineteen agricultural schools and colleges with extended courses approved by the Department. Of these nine (seven for male students and two for female students) were conducted directly by the Department; the other ten (one for male students and nine for female students) were under private management. The total number of resident students at these institutions during the year was 436.

At three of the institutions managed by the Department courses of training are provided for the students who wish to qualify for itinerant instructorships in agriculture, horticulture, butter-making, or poultry-keeping, or for teaching in agricultural schools. These schools are the Royal College of Science at Dublin, the Albert Agricultural College at Glasnevin, and the Munster Institute at Cork.

During the year 1911–12 agricultural winter classes were put into operation in 28 counties at 76 centers. The total number of students admitted to these classes was 1,405. Thirty-five of the county itinerant instructors in agriculture were engaged in conducting these classes, and one teacher was specially engaged for the work. It was possible in addition to the ordinary agricultural teaching to provide instruction in veterinary hygiene in 22 classes. Outdoor demonstrations, usually four at each class, and of from one to four hours' duration each, were given by the county itinerant instructors in the classes in 27 counties.

Evening lectures for farmers were also given by instructors on days when they were not engaged in teaching classes. Six hundred and forty-two such lectures were delivered at 297 centers, the estimated total attendance amounting to almost 24,000 persons, giving an average of 38 per lecture. The figures of attendance at itinerant lectures have fallen off each year since 1907–08, owing to the more general adoption of the winter agricultural class scheme and the consequent substitution of class teaching for lecturing.

Course at Winter Agricultural Schools

The course of instruction at these winter agricultural schools for the year 1911–12 is as follows:

Soils.— Brief sketch of origin and formation. Conditions influencing fertility. Soil improvement by draining, liming, etc.

Plant Life.— Study of a plant, and the functions of roots, stem, and leaves; modification of these organs. Elements of plant food and their relative importance from an agricultural point of view. Conditions affecting the development of plants. Examination of the habits of growth and duration of the principal crops and weeds found on the farm, and the practical application of this knowledge.

Manures.— Farmyard manures; its storage and application. Organic and artificial manures. Composition, description, and identification of artificial manures; their valuation, time and manner of application. Mixing manures. Special manures. Fertilizers and Feeding Stuffs Act.

Crops and Cropping.— Rotations. Cultivation. Seeding, manuring, and harvesting of the principal farm crops. Forage and catch crops. Study of the commoner insect pests and fungoid diseases of crops.

Grasses and Clovers.— Characteristics, duration, and adaptability for various purposes in farm practice. Identification of the different species and varieties.

Seeds.— Identification of farm seeds and the commoner impurities and adulterants. Germination and purity tests,

how performed; the inferences to be drawn therefrom. Change of seed. Grass and mixtures. Weeds and Agricultural Seeds Act.

Live Stock.— Care and management of various classes of farm stock, with special reference to breeding, feeding, and housing. Principal breeds of live stock, their characteristics and suitability for various systems of farming.

Feeding Stuffs.— Constituents of foods; their respective functions and value in animal nutrition. Valuation, description, properties of home-grown and purchased feeding stuffs. Impurities and adulterants. Rations for various classes of farm stock. Methods of using foods. Fertilizers and Feeding Stuffs Act.

Dairying.— Secretion of milk; composition; conditions influencing the quantity and quality of the milk yield. Care and treatment of milk for new milk trade or butter-making. Cream ripening. Milk records. Improvement of the milking qualities of herds. Respective merits and demerits of the several systems of dairying. Summer and winter dairying.

Mensuration and Land Surveying.— Rules for estimating the areas of the principal geometrical figures met with in chain surveying and farm calculations. Field book; method of entering measurements; calculation and computation of areas. Practical work with the chain in the field. Plotting from the field book to given scales. Location of drains, etc., on the plans for future reference.

Farm Account Keeping.— Method of keeping a dairy, cash book, and a record of credit transactions. Farm valuations and stocktaking. Balance sheets, their interpretation. Estimates of the cost of various farm operations, etc.

List of Equipment Required at Each Center

6 Flower pot basins, 6 to 8 inches diameter.
1 piece Wire Gauze, 6 inches square.
6 small bottles of chemicals, such as HCl, NaOH (these two both dilute); limewater and methylated Spirits.

12 Test Tubes.
1 Test Tube Stand.
1 Tripod.
2 Flasks.
6 Beakers.
6 Pocket lenses.
2 Porcelain evaporating basins.
1 Glass Funnel, 6 inches diameter.
1 Blackboard.
1 Easel.
1 Box chalk (also colored chalk if desired).
1 Spirit lamp.
60 Bottles (glass honey jars) for samples of seeds, manures, and feeding stuffs.

A couple of strong boxes, furnished with locks, should be provided for storing equipment at each center.

In addition to the above equipment the following articles may be used at more than one center:

1 Chain and arrows, tape and offset staff.
1 Box of samples of grasses, such as are prepared by seedsmen.
Diagrams of the more common injurious insects, etc., such as are prepared by the Royal Agricultural Society of England.
Collections of samples of grasses, clovers, manures, and feeding stuffs.

Summary of the Secretary's Views

Secretary Campbell believes that the salvation of backward farming does not lie in the teaching of agriculture in the public schools, or in the multiplication of agricultural colleges with demonstration farms attached. He maintains that it will come in Ireland, as it has come in Holland, Denmark, and Germany, through "the training of teachers and experts, the appointment of itinerant instructors in every branch of agriculture, the establishment of winter schools and of agricultural stations for experimental and other work and provisions for research."

He also holds that too much stress has been laid upon scientific instruction and too little upon commercial and practical training, each of which he regards as more essential to the success of the farmer than scientific instruction. All three are necessary, as farming does not admit of the division of labor that counts for so much in city industry, but no amount of technical or scientific education can compensate for lack of the knowledge and experience that can be gained only on the farm.

He thinks that agriculture can be taught only by persons who have had systematic training in agricultural science and thorough practice on a real farm. He deprecates the confusion existing between the idea of simple nature study for its general educational value and the idea of technical agricultural training. He believes that nature study should pervade the atmosphere of the elementary rural school, and that every subject taught there should find its illustration in rural life. But the study of technical agriculture trains for a special calling just as the study of printing or engineering prepares for only one line of work, while nature study is cultural, not technical, and should form part of the education of every pupil, irrespective of the calling for which he is fitting himself.

The work of the Department has been influenced by investigations of the agricultural schools of foreign countries, but nothing has been taken bodily; everything has been adapted to the Irish situation. Every visitor whom I have met has been greatly impressed by the clearness of view and the earnestness of purpose of those administering the technical and agricultural schools of Ireland. These schools have coöperated successfully with the national elementary, secondary, and parochial schools; and, while preserving their own independence of purpose and fields of work, they have been able to assist other forms of educational effort without arousing hostility or jealousy. This is a unique experience in the history of vocational education.

CHAPTER V

INDUSTRIAL INSTRUCTION IN IRELAND

THE previous chapter has given a brief description of the organization of the department for agricultural and technical instruction. As was stated there, each of these two divisions is under an assistant secretary, Mr. George Fletcher having charge of the department for technical instruction. The two divisions of the department work in the closest harmony, as is shown by the fact that manual instruction and domestic economy classes in the rural districts are carried on under the management of the Board of Technical Instruction, supported by funds provided by the Agricultural Board. Mr. Fletcher's division has at its disposal between $250,000 and $300,000 a year. This is expended in aiding a system of itinerant instruction, trade preparatory schools, apprenticeship scholarships, technical instruction for both boys and girls, commercial instruction and training of teachers. This sum is divided into two parts. Rather less than half (about $130,000 in 1911–12) is spent on schemes for technical instruction in the six county boroughs; less than half (about $100,000) on technical instruction outside the county boroughs, and the remainder for scholarships, the training of teachers, and other purposes that help the whole country.

Besides these sums the Agricultural Board each year gives about $52,500 for manual training and domestic economy classes in rural districts, to be administered by the two boards together.

Classes in lace, crochet, and shirt-making are also financed by the Agricultural Board, to the extent of $15,000 in 1911–12.

TRADE PREPARATORY SCHOOL OF CORK, IRELAND, CONDUCTED BY THE CHRISTIAN BROTHERS

TRADE PREPARATORY SCHOOL OF CORK, IRELAND, CONDUCTED BY THE CHRISTIAN BROTHERS

Schemes under Local Authorities

The schemes for technical instruction are largely administered by the local authorities in order to meet the local industrial needs of the country. The Department encourage as far as possible schools that provide suitable courses of instruction for industrial students, but in some smaller centers and rural districts they grant assistance in giving instruction in single subjects. The Department has now arranged a program for a course of instruction extending over four years in a limited number of branches of technical knowledge. At present they give examinations on the following courses:

Commerce.	Electrical engineering.
Building trades.	Mechanical engineering.
Applied chemistry.	Domestic economy and Art.

Provisional certificates are granted to students passing the third year examinations in these courses, and a full course certificate is awarded on the passing of the fourth year examinations.

The authorities of each school are required to organize courses of instruction growing out of the local industrial needs, and covering generally from three to four years. In some schools a preparatory course is provided. Instruction is generally given in evening classes, which begin at six o'clock throughout the week, or after one o'clock on Saturday.

The preparatory courses include instruction in English, mathematics, and any one or more of the following subjects:

Experimental science,
Drawing,
Manual work in wood or metal.

The specialized courses of instruction consist of a scheme of two or more subjects, approved by the Department, and extending over two or three years. In the first year of preparation students must take at least two and not more than three subjects, and in subsequent years not more

than three subjects, one subject being continued throughout each student's course of study.

The subjects included in the specialized course of study are:

Group A.— *Commercial Subjects* (elementary).

This group includes shorthand, bookkeeping, copying, indexing, filing, correspondence, typewriting, and mechanical operations concerned with postage, telegraphy, and banking.

Group B.— *Commercial Subjects* (more advanced).

This group includes economics, commercial law, accountancy, banking, insurance, commercial history, geography, languages, mathematics, etc.

Group C.— *Pure and Applied Science.*

Under pure and applied science are placed such subjects as mechanics, physics, chemistry, biology, botany, zoölogy, physiology. Under applied science are naval architecture, navigation, nautical astronomy, building construction, machine construction, and other subjects involving systematic instruction in the underlying scientific principles, classified under such headings as:

(1) Building industries.
(2) Metal industries.
(3) Textile industries.
(4) Printing and process industries.
(5) Furniture industries.
(6) Leather industries.
(7) Woodworking industries.
(8) Carriage building industries.
(9) Electrical industries.
(10) Chemical industries.
(11) Agricultural industries.

Group D.— *Handicraft and Domestic Science.*

(1) Handicraft — manual instruction in wood and metal, woodcarving.

(2) Household subjects, including cookery and hygiene, housewifery, laundry-work, dressmaking, millinery, needlework.

Group E.— *Art Subjects.*

Drawing, (freehand and mechanical), design, painting, architecture, modeling and applied art, such as black and white illustration, goldsmiths', silversmiths', and jewellers' work, stained glass work, mosaic, enamelling, and any other subject of applied art which seems to be required by the locality.

Day Schools for Apprentices and Others Engaged in Business

Day technical or commercial schools or classes are carried on in conjunction with works, business houses, or technical schools with a view to improving the condition of local industries and commerce, and to the training of tradesmen and apprentices.

Such schools must be open on one or more days of the week, not later than six o'clock in the evening or one o'clock on Saturdays.

The accommodation provided, the courses of instruction, the syllabuses of the subjects taught, the qualifications of the teachers, the time-table of instruction, and the estimate of expenditure must be approved by the Department.

A number of day trades preparatory schools or courses for apprentices have been established. There are 13 such schools in Ireland. The courses are three years long, and aim to terminate when the boy is about 16, the customary age for entering apprenticeship in a skilled trade.

Pupils doing satisfactory work in trades preparatory schools and making definite arrangements to continue their instruction in the evening schools while completing an apprenticeship, are given scholarships. The system seems to be encouraging an increasing number of young men to enter into the skilled trades.

Other scholarships are awarded to boys on the results

of a competitive examination held annually. Boys who have completed work equivalent to that of our sixth grade and are in regular attendance at a primary school, an elementary evening school or a preparatory course of an evening technical school, are eligible for this examination.

The scholarships are of two kinds: (a) technical scholarships and (b) apprentice scholarships. The first are given to boys over 13 years of age and assist them to pay expenses in a day technical school, an approved day trades preparatory school or some other industrial school. The scholarships range in value from $25 to $100. They may be renewed from year to year on the recommendation of the Department.

The apprentice scholarship can be continued during an apprenticeship of five years. It is a condition of the terms that the holder be with a firm approved by the Department, that he be permitted to attend approved courses of instruction, and that he be paid for the time spent in classes. The Department's inspectors have authority to visit during working hours the places where the apprentices are employed, and the Department have authority to cancel the indenture when they deem such a course advisable.

Similar scholarships are granted to girls to enable them to attend regular courses of instruction and training in domestic economy. Each scholarship is worth $75 and is tenable at residential schools of domestic economy approved by the Department.

At first, the buildings used in all this work were of a somewhat primitive character, disused chapels, old fever hospitals, jails, and in one case a room under a large town water tank. At present, however, suitable buildings of a permanent character have been provided in about fifty places. Other buildings are projected or in course of erection, and there are many somewhat unsatisfactory buildings which are being made to do good service.

The following table shows the number of students (with their occupations) attending instruction in the four provinces:

YOUNG MEN

Persons engaged in farming occupations	2,644
Building trades—including workers in wood, etc	1,290
Coach and car builders	95
Engineers, workers in metal, draughtsmen, etc	1,499
Architects, surveyors, civil engineers, etc	152
Electrical engineers, scientific instrument makers, etc	244
Printing trades—compositors, lithographers, etc	296
Textile industries—designers, weavers, etc	643
Painters, decorators, etc	236
Plumbers, gasfitters, etc	209
Trades involving applied art, jewellers, furniture makers, etc	228
Chemists, analysts, druggists, etc	260
Salesmen, shopkeepers, warehousemen, etc	1,531
Clerks in commercial offices	2,173
Clerks in banks, civil service, law, assurance and accountants' offices	836
Teachers, assistant teachers, pupil teachers	722
Students (university, law, and medical)	188
Occupations not included in the above class	1,602
Boys just left school or college	470
Boys still in attendance at school or college	2,338
No occupation stated	1,050
Total number of young men	18,706
Corresponding numbers for 1910–11	17,342

YOUNG WOMEN

Persons engaged in farming occupations	4,529
Domestic servants	1,825
Printing trades	61
Dressmakers, milliners, etc	789
Textile industries—designers, weavers, etc	619
Factory workers not included in above	902
Workers in lace, crochet, embroidery, sprigging, drawn thread work, etc.	1,752
Saleswomen, shopkeepers, etc	1,425
Clerks, cashiers, civil service, etc	1,293
Teachers, assistant teachers, pupil teachers	1,946
Students (university, medical)	140
Occupations not included in above classes	1,987
Girls just left school or college	900
Girls still in attendance at school or college	2,848
No occupation stated	5,780
Total number of young women	26,796
Corresponding numbers for 1910–11	25,967
Total number of students	45,502
Corresponding numbers for 1910–11	43,309

Secondary Schools

The Department has endeavored to stimulate the proper teaching of experimental science and drawing in day secondary schools. In this they work in coördination with the

Board of Intermediate Education. Syllabuses drawn up by the Department have been introduced, and have stimulated a much higher grade of work in these subjects than was formerly attained in these schools. The Department grant money to schools doing satisfactory work along these lines, under their inspection. The following table shows something of the extent of this work during the past ten years:

No. of Pupils Who Worked Through the Courses and Upon Account of Whom Grants Were Payable

Year	No. of Schools	Preliminary Course, 1st Year	Preliminary Course, 2nd Year	Special Courses, 3rd Year	Special Courses, 4th Year	Totals (Individual Pupils)	Amount of Grants Earned.
							£ s. d.
1901– 2	154	6,615	....	....	....	6,615	9,575 10 8
1904– 5	256	5,091	3,166	1,267	267	9,791	19,417 3 8
1907– 8	289	6,213	4,385	2,059	531	13,115	26,725 5 2
1909–10	285	6,171	4,289	2,499	554	13,367	27,955 4 0
1911–12	277	6,200	4,250	2,300	630	13,380	27,900 0 0

The figures for the session 1911–12 are only approximate.

The Work in Rural Districts

Mr. George Fletcher reported at the Manchester Congress in 1911 that the Department had endeavored:

"(a) To carry into the remote parts of rural Ireland such forms of technical education as are suited to their needs; that is to say, such as will focus effort upon the home and render the countryside more bright and prosperous.

"(b) To give facilities for the boy of exceptional ability to continue his studies in a center where suitable schools exist, and to direct his efforts into an industrial channel.

"The first of these objects has taken the form of courses of instruction in domestic science, including cookery, laundry work, home sewing, home nursing and hygiene, manual instruction in wood, and various home industries. These courses are normally of six weeks' duration, consisting of daily lessons, but they are often extended to three months or even longer. The organization is simple. A

room—as suitable as may be—is rented and the instructor takes down a full set of equipment and begins work. Hundreds of these courses are held every year with good results. There are now at work in Ireland some 110 domestic economy teachers and 85 manual instructors in small towns and rural areas."

Training of Teachers

The corps of teachers is made up of practically trained men and women, almost all of whom are connected with work outside the schools. The Department have instituted courses for the preparation of teachers in various subjects in all the larger towns of Ireland. Here they have adequate laboratory equipment and specially trained teachers to conduct summer courses. Teachers who are in other ways qualified are required to attend at least five such courses and pass an examination at the close. These courses have been carried on for ten years and are attended by 600 or 700 persons each year.

The summer courses of instruction for teachers held in July and August, 1912, provided for instruction in experimental science (physics, chemistry, physiology and hygiene, and physical and commercial geography), drawing and modelling, domestic economy, advanced cookery, manual instruction (woodwork), manual instruction (metalwork), practical mathematics and mechanics, handrailing, office routine and business methods, and rural science (including school gardening).

A special course of instruction for teachers of Limerick lace-making, crochet-work, embroidery, and sprigging was also held. The Department provided advanced instruction at the Royal College of Science and the Metropolitan School of Art at Dublin; the Irish Training School of Domestic Economy at Stillorgan, County Dublin; the Municipal Technical School and School Garden at Kingston; and the Crawford Municipal School of Art at Cork and Belfast and an industrial school in Dublin.

The Department has made provision for training teachers

of commercial subjects by providing scholarships at the London School of Economy and Political Science.

One of the present difficulties is the unwillingness of employers to have their plans disturbed and to permit the boys and girls to attend day schools. The managers of the Department feel that the present plan of giving the work almost entirely in the evening is a mistake, and that the instruction given will lack in effectiveness as long as the present situation continues. They hope that employers will take a different attitude, and there are many indications of a change in feeling. The amount of day work given in the technical schools of the larger towns is constantly increasing.

The Department have developed a system of instruction in harmony with the peculiar needs of Ireland—a system resting upon the broad foundation of a good general education, and a special corps of technically trained teachers under the control of special boards and supervisors.

AGRICULTURAL WINTER SCHOOL OF GRONINGEN, HOLLAND

CLASS ROOM IN WINTER AGRICULTURAL SCHOOL OF GRONINGEN, HOLLAND

CHAPTER VI

AGRICULTURAL INSTRUCTION IN HOLLAND

I. THE DEVELOPMENT OF THE SYSTEM

Early Efforts

THE first attempt to teach agricultural subjects was made in 1782, when two professors at the University of Leyden gave lectures on agricultural statistics.

The next step was taken when, at the accession of King William I, the professorship of agriculture and economics was founded. In 1816, three chairs were established for these subjects: in Utrecht, Groningen, and Leyden; but the hopes aroused by these foundations were not realized. At first the courses were arranged for students of all the faculties; later they were planned especially for theological students. It was thought that as spiritual advisers they would be in a position to help their communities in matters connected with country occupations. But all these plans fell through, for the lectures were not attended.

It was some time later that the idea suggested itself of giving agricultural instruction directly to the people engaged in that work. To this end was established in 1842 an agricultural school in Groningen-Haren, which received support both from the State and from the province. At first it was a private institution, but later it was taken over by the Agricultural Association of the Province of Groningen and was kept open until the seventies.

The majority of the pupils studied forestry, and it was a severe blow to the school when the Government took from it the right to train forestry officials. As, moreover, the directors of the school could not agree as to methods of teaching, the attendance fell off more and more, and the last class was held in 1871.

With the appointment of Dr. Staring, the well-known geologist, as head of the school system of the Netherlands, a fresh impulse was given to agricultural education. After the discouraging experiences touched upon here, he concluded that provincial agricultural schools should be established as centers from which instruction suited to the different pursuits of the various provinces should be given throughout the land. He succeeded to the extent of adding to the secondary schools at Warffum (Groningen) and Wageningen (Gelderland) departments for agricultural instruction.

The school at Warffum soon came to an end; but Wageningen went on until 1876, when it was converted into the long-desired National Agricultural School.

Not much progress was made, however, until 1890, when the State decided to take agricultural education into its own hands and to encourage it by means of subsidies. With this step began the real success of the system.

Besides the National Agricultural School at Wageningen, there were before 1890 only a few other schools in which agriculture was studied, some agricultural courses established by individuals and agricultural associations, and a few experiment stations of little importance. Of these the only institutions that still survive and receive state aid are:

1. A horticultural school (at Frederiksoord).
2. A general course in forestry.
3. Lectures on the care of horses, swine, poultry, and bees under the auspices of about twelve associations.

These are subsidized by the State to the extent of about $8,500 a year.

State Teachers of Agriculture and Horticulture

The first State teacher of agriculture was appointed in 1890 and the first teacher of horticulture in 1896. Today the whole country is divided, not merely into provinces, but into districts, thirteen for agriculture and twelve for horticulture, in each of which a State teacher is in charge. The districts for the two subjects do not coincide, as they are

mapped out according to the occupations and needs of the various communities.

The importance of these State teachers in the Dutch system of agricultural education can scarcely be overemphasized. In 1913, there were, besides the twenty-five in charge of districts, three attached to the general service, and seven assistants.

These men are all trained at Wageningen, and have to pass a special examination, and work as assistants for two years before they are promoted to full positions. Some of the teachers, as well as their assistants, are always being used for special service at home or abroad.

As a rule, however, the Director-General of Agriculture assigns to each teacher his place of residence and the district of which it is the headquarters. There, subject always to transfer according to the needs of the country, he performs his multifarious duties, which grow more and more numerous every year.

In the first place, the State teachers plan and have charge of the experiment fields and gardens, in regard to which they must submit an annual report.

Of these there were in 1906 more than six hundred, from forty to fifty in a province, each near the road and plainly labeled, so that the passing farmers can see with their own eyes what methods are most successful and what varieties of seed give the best results. These fields have everywhere an educative effect. The farmers almost never pass them by without a show of interest. If, for example, they see that their turnip crop falls short of that shown in an experiment field, they immediately try to purchase the same kind of seed. In many places the whole neighborhood watches the experiments all summer long with the greatest interest. Dr. Frost, who wrote the monumental work on the practice and study of agriculture in the Netherlands, found an amusing instance of this. On the back of a label on a new sort of potatoes in an experiment field had been scratched with a nail: "These are no good, *boertje* (little farmer)."

As the educational value of this work is so clear, the

planning and management of it is an important part of the State teachers' duty.

Again, they must hold conferences on agricultural and horticultural problems. These meetings are free to all, and after the formal program there is always a general discussion.

The State teachers must also furnish the director of the plant pathology department with information about plant diseases and noxious animals in their respective districts.

They also assist in collecting and distributing information for summaries on the condition of the crops and for agricultural statistics.

It is a part of their duty to make suggestions to the Minister of Agriculture, to the Queen's Commissioners, and to give advice gratuitously to the farmers and gardeners in their districts on any subject pertaining to agriculture and horticulture.

They are obliged to keep up with the work of agricultural societies and associations, to keep in touch with the officers of these societies, and to assist at the meetings of such bodies.

Nine teachers of agriculture and five of horticulture are at the head of the fourteen winter schools in which farmers' boys who have finished the elementary school and have had some experience in practical agriculture and horticulture, are given the theoretical background that they lack, which is bound to contribute to their success. The State teachers who are directors of these schools are exempt from some other duties, especially from holding conferences.

The State teachers direct all courses for elementary teachers who are working for diplomas in elementary agriculture, the winter courses for adults and soldiers, the courses in veterinary work and horse-shoeing, and other special courses, as well as the courses for young country girls and women.

Twice a year they must attend meetings under the auspices of the Department of Agriculture. At one of these conferences the Inspector of Agriculture presides and at the other the Inspector of Agricultural Education;

and all sorts of problems relating to the work of the State teachers in agriculture and agricultural education are discussed.

At home they have their hours for consultation — very often on market days. They send out much information by mail. They travel about a great deal to give advice on the spot, to visit courses, to make investigations, and to hold conferences. In all these ways they keep in touch with agricultural progress, and never lose sight of the practical side of their subject.

The State teachers are under the general jurisdiction of both the Inspector of Agriculture and the Inspector of Agricultural Education; and at the end of each year they make a detailed report of their various activities to the Director-General.

To sum up, the Dutch state teachers correspond in their function to the German and Irish itinerant teachers.

Winter Schools of Agriculture and Horticulture

In close connection with the appointment of State teachers of agriculture and horticulture arose the winter schools for teaching these subjects. The first was established at Groningen in 1893. In 1913, there were fourteen (nine of agriculture and five of horticulture), each in charge of a State teacher.

The nine winter schools of agriculture are at Groningen, Veendam, Leeuwarden, Meppel, Zutphen, Schogen, Dordrecht, Goes, and Sittard.

The five winter schools of horticulture are at Aalsmeer, Lisse, Naaldwijk, Boskoop, and Tiel.

Winter Courses

Poor farmers, however, could not spare their sons from the home work or afford them money for board and lodging while they were attending winter schools. Moreover, a large proportion of the adult rural population could never be reached at all by the activities of the State teachers. The next step, then, was to establish winter *courses* for

boys and for adults — a new form of agricultural education on a still lower plane. A few such courses had been given earlier, but without much result; and in order to put them on a sound basis and make them effective, the State undertook to train teachers especially for this work. In 1893, these courses for teachers of elementary agriculture and horticulture were inaugurated and put under the direction of the State teachers. In 1913, sixteen such courses were given.

During this year 406 winter courses in agriculture and 120 winter courses in horticulture were given for boys, and 130 in agriculture and 78 in horticulture for adults.

In 1905–6, the Government first organized winter courses for soldiers in garrison, at which attendance was voluntary. In 1912–13, sixteen such courses were given.

Courses in horse-shoeing began as early as 1885, and courses in veterinary work have also been added.

Dairy Inspectors

Similar to the work of the State teachers of agriculture and horticulture is that done by the dairy inspectors, who, although they are not government officials but employees of provincial agricultural associations, receive state aid in their work.

The first dairy inspector was appointed by the Agricultural Society of Friesland; and in 1913 there were twelve, one for each province, and in Groningen two.

The duties of these men are:

a. To hold conferences about dairying.

b. To give courses in dairying.

c. To give advice and information on the subject to associations or individuals.

d. To assist in the establishment of dairies.

e. To supply an expert personnel for dairies.

f. To have milk analyzed and to eliminate cows of little value.

g. To analyze dairy products, and in general to carry out state or provincial instructions in regard to dairying.

Owing to difficulties in the financing of these officers, the State began in 1912 gradually to take them over as government officials. This change is now almost accomplished.

II. Survey of the System

The Dutch system of agricultural and horticultural education may be outlined as follows:

A. Advanced:
   State High School of Agriculture, Horticulture, and Forestry at Wageningen.

B. Secondary:
   1. School of Agriculture at Groningen.
   2. School of Colonial Agriculture at Deventer.
   3. State Dairy School at Bolsward.
   4. Fourteen State Winter Schools (nine of agriculture, five of horticulture).
   5. Gerard Adrian van Swieten School of Horticulture at Frederiksoord.
   6. Forestry School of the Dutch Society in Utrecht for the Development for Moorland.
   7. State Veterinary School at Utrecht.
   8. Blacksmith schools at Amersfoort, Tiel, and Groningen.

C. Elementary (in 1913):
   1. 406 winter courses in agriculture, 120 in horticulture, for boys.
   2. 130 winter courses in agriculture, 78 in horticulture, for men.
   3. 16 winter courses for soldiers in garrisons.
   4. 80 courses in veterinary work.
   5. 17 courses in horseshoeing.
   6. Courses in dairying.
   (Figures not given for 1913; 178 between 1907–1911.)

D. Training of elementary teachers of agriculture and horticulture (1913: 16 courses).

E. Training of country girls and women.

1. De Rollecate State School of Home Economics at Dedemsvaart.
2. Schools of country housekeeping at Lierop and in several other places.
3. Summer courses in country housekeeping given in winter agricutural schools at Veendam and elsewhere.
4. Continued courses for farmers' daughters.
5. Short courses for wives and daughters (over 18) of working men.
6. Courses in agriculture for women farmers.
7. Short courses in dairying, feeding stock, etc.

(Figures are not given as the work is still so new.)

Thus, in little Holland, not much more than one-fifth the size of Illinois, there are, besides one agricultural school for the most advanced work, no less than 23 secondary schools. In 1913, sixteen special courses for training teachers of elementary agriculture were given, and about 1,000 courses (847 were counted and the figures are incomplete) were given to the country people at large. This does not include conferences and single lectures, of which, for example, 807 were given between 1907–1911—an average of 160 a year—by the dairy inspectors alone.

The State Agricultural School at Wageningen

The purpose of this school is to give a scientific training to the sons of rich landowners, prosperous farmers, and breeders on a large scale, and especially to train experts for the service of the State, various societies and associations, and individuals. Here are educated State teachers of agriculture and horticulture; professors in the agricultural and horticultural schools; dairy inspectors; assistants, chemists, and experts for experiment stations; officials of the forestry service, both at home and in the colonies; officials of the Netherland Society for the Development of Moorland; employers for agricultural industries at home and in the colonies. Finally, the school is the headquarters for research in agriculture, horticulture, and forestry.

It is managed by a director and an administrative council, made up of twelve professors appointed by the Minister of Agriculture, Industry and Commerce.

The staff consists of the director, twenty-nine professors, eight assistants, two engineers, a librarian, an administrative officer, twenty-three employees, and thirty-four work people.

Six courses are given:

1. Agriculture in the Netherlands.
2. Colonial Agriculture.
3. Forestry in the Netherlands.
4. Colonial Forestry.
5. Chemistry and Agricultural Technology.
6. Horticulture.

Each course extends over three years; but special work may also be arranged.

Students are admitted on examination after finishing a five-year course at a secondary school.

The fee is eighty florins a year (about $32.00); and there is a scale of fees for special courses.

The work of the first year is preparatory. The preliminary work in science, in physics, mechanics, and economics is reviewed and continued. The choice of subjects is carefully adapted to the course chosen. In order to combine the auxiliary sciences and applied science, among the first-year studies is included the theory of plant cultivation. Some time is given to practical work in the laboratories and in the experiment fields. The professional training proper for the next two years is continued on the scientific basis of the first year and specialized for the different sections.

The subjects studied by all sections throughout the course are: physics, meteorology, botany (physiology of plants and plant pathology), geology and mineralogy, chemistry (with special reference to agriculture), economics, drawing, plant culture, mathematics, surveying and navigation, mechanics, improvement of the soil, fertilizers, etc.

In the section for Dutch agriculture, there are also

courses in anatomy and physiology, country architecture, working the soil, agricultural machinery, breeding, bookkeeping, forestry and civil law, agricultural technology, dairying, veterinary work, etc.

In the section for horticulture, the classification of plants, landscape gardening, systematic culture of garden plants, tree, fruit, vegetable, and flower culture are emphasized.

In the sections for colonial agriculture and horticulture, the government and ethnography of the East Indies, the Javanese and Malay languages, and the special crops grown in the colonies are studied.

In the same way the sections for forestry and chemistry and agricultural technology develop special branches of the work.

The fourth year is planned for students who wish to specialize still further.

For the use of the students there are laboratories and collections of materials and implements. Experiment fields, plots for plant pathology and all sorts of special cultures, botanical gardens and a farm, all contribute to give a really practical education. There is a library of 12,000 scientific works besides the periodicals on this subject.

There is an examination at the end of each year; and at the end of the first year the Colonial Minister chooses those who have done especially well to be candidates for positions as foresters (*ingenieurs forestiers*) in the Indian service.

Connected with this school are special institutes:

1. The Laboratory for the Sugar Industry. This is planned to train chemists for sugar factories and is open to those who have completed the course in Dutch or Colonial agriculture, or its equivalent. Students must also have worked for a season in a sugar factory.

2. The Institute for Agricultural Machinery. This was opened in 1905. Its aims are:

(*a*) To give instruction as to the purchase and use of agricultural machines and implements.

(*b*) To do research work in agricultural mechanics.

(*c*) To give advice to farmers and agricultural associations about the construction and alteration of buildings used for agricultural purposes.

3. The Institute for Plant Pathology.

This undertakes:

(*a*) To give information about the diseases of plants, parasites, and noxious insects, and the methods of combating them.

(*b*) To make researches along these lines.

4. The Institute for the Improvement of Cultivated Plants. This was opened in 1912. It aims to produce new good varieties while conserving what is valuable among the old, and to aid all other efforts for the improvement of plants.

The number of students at Wageningen in 1911–12 was 229, of which 213 were in the regular courses.

In 1912, the elementary school of agriculture which had also existed at Wageningen was closed because of the difficulty of handling together pupils who were studying for the Indies and for agricultural pursuits at home. In its place were established the agricultural schools at Groningen and Deventer, the former planned for boys who mean to stay in the home country and the latter for those who are going to the East Indies.

The Secondary School of Agriculture at Groningen

This school admits students on examination after three years in a secondary school, instead of five years, as at Wageningen. They must be about fifteen years old.

The course is two and one-half years long. It is arranged for the sons of prosperous farmers, for whom the course at Wageningen is not suitable because it keeps them too long away from the practical work on the farm, while, on the other hand, the winter schools do not give them a sufficiently thorough training to enable them to take their places in the vanguard of agricultural progress.

The tuition is fifty florins a year (about $20.00).

The school is in a fine building, which is also used by

the winter school of agriculture. The two schools are managed by one director and, to some extent, taught by the same teachers. The building is provided with classrooms, laboratories, and demonstrating rooms for the study of horses, cattle, and various agricultural products. In one room I found a commission examining about forty samples of barley raised in various parts of Holland. In another room I saw samples of beets for sugar manufacture, all labeled according to the value placed upon them by another commission. In a third, samples of potatoes were awaiting the examination of a commission. A fourth room was devoted to the examination of butter sent in by the farmers. It was impossible for me to separate the parts of the work belonging to the winter school from the secondary work.

In one room with raised seats, like some lecture rooms in American high schools, there was a space with a stone floor where cattle, horses and farm machinery, could be brought before the class for examination and appraisement. In the next room there were model stalls for cattle and horses and a space for storing agricultural machinery to be examined by the class. From this room these animals or machines could be brought into the demonstration room when wanted.

On one side of the building there were demonstration plots devoted to raising characteristic products of Dutch agriculture; on the other side of the building there were plats of different types of Dutch soil to be studied by the students, one of sandy soil, one of clay, and one of peat or turf. Students were shown the best methods of working and fertilizing each of these sorts of soil.

The Secondary School of Colonial Agriculture at Deventer

This school prepares general agriculturists (not specialists) for the East Indies.

The entrance requirements are the same as at Groningen; the course is three years long, and the tuition is sixty florins (about $24.00) a year.

The State Dairy School at Bolsward

This school was opened in 1904 to train directors for dairy work.

Since 1908 the regular course has been two years long, while special temporary courses for various phases of the work are organized from time to time.

Students must be eighteen years old and must have a certificate showing that they have worked at least a year and a half in a cheese factory. They must pass an examination in reading, spelling, arithmetic, algebra, geometry, geography, and natural history.

The tuition is forty florins ($18.00) a year.

The teaching is theoretical, but there are practical exercises and excursions for study connected with the work.

During the summer vacation between the two years pupils are required to do practical work in the dairies to which they are assigned by the Director, to keep notes of their work and observations, and to submit a detailed report at the end of the vacation.

The course of study includes: dairying, bacteriology chemistry, physics and mechanics, mathematics, feeding and hygiene of stock, bookkeeping and commercial arithmetic, commercial correspondence in Dutch, the same and professional literature in French, German, and English, and practical exercises.

The State Winter Schools of Agriculture and Horticulture

The object of these schools is to give country boys the chance to obtain, at very little expense, the theoretical knowledge necessary to make them successful farmers and gardeners.

Each school is managed by a director, who is usually a State teacher of agriculture, and under the supervision of the district inspector of agricultural education, aided by a

local committee of not less than five members, appointed by the Minister of Agriculture.

These schools have two classes in a course extending through two winter semesters.

The pupils must be sixteen years old and pass an examination in reading, Dutch, writing, and arithmetic. Moreover, they must show that they have the necessary aptitude to profit by the course. Some practical knowledge of agriculture or horticulture is also required.

The instruction is theoretical and is based upon the actual conditions of the province and district in which each school is situated.

The course of study for agriculture includes: properties of arable land, working and improvement of the soil, agricultural machinery, fertilizers, plant culture, plant pathology, appraisement of cattle, breeding, hygiene, feeding of stock, dairying, agricultural economics, bookkeeping, chemistry, physics, botany, zoölogy, Dutch, mathematics, fruit culture, vegetable culture, and bee-keeping.

The horticultural course includes many of the same fundamental subjects, with special study of botany, zoölogy, meteorology, tree culture, flower culture, bulb culture, construction of frames and systems of heating, country architecture, etc.

The winter semester is from October 15 to March 1, with usually twenty-five or more hours a week.

The winter schools of agriculture have demonstration plots, and the schools of horticulture use the State experiment gardens.

In 1912–13, the attendance at the schools of agriculture was 2,096, and at the schools of horticulture 795.

Each school has its own building and equipment, except the one at Groningen, which is in the same building with the secondary school. All the directors areState teachers of agriculture or horticulture.

The tuition fee for the entire course is from about $4.25 to $8.50, and pupils may arrange to take only part of the work. An industrious pupil who cannot afford to pay any-

thing is given tuition as well as books and other necessary equipment by the State. But the pupils must find their own board and lodging, as only a small proportion of them are able to return home even for week-ends.

The Director consults with parents and guardians as to where the boys can most profitably spend the months between the two semesters (that is, March 15 to October 15); if possible, he visits them, and he is in constant touch with them by means of correspondence.

Dr. Frost, after making his detailed survey of Dutch agricultural education, said, in 1906, that, although the winter schools fulfilled their purpose in giving a number of persons a thorough training, their influence was not very great because most of the farmers could not afford to send their sons to them. It is to be noted, however, that the attendance has practically doubled during the last six years.

The Gerard Adriaan van Swieten Horticultural School at Frederiksoord

This is a private school founded in 1884, but it now receives an annual State subsidy of five thousand florins ($2,000.00). Its aim is to make good practical gardeners. The boys must be fifteen years old and of suitable physique. The instruction is practical as well as theoretical, and there is a large garden connected with the school.

The Forestry School of the Dutch Society in Utrecht for the Development of Moorland

In 1902, the above-named Society decided to establish a school to train its own officials, while admitting also pupils intending to enter the service of the State or of individuals, as foresters.

The instruction is theoretical for two winter semesters, and during the summer the pupils work at enterprises carried on by the Society and by the State.

The course of study includes: general forestry, forest

protection, measurement of timber, forest development, forest economics, the soil and climate of the Netherlands, irrigation and cultivation of the prairies, drainage, physics and chemistry, fertilization, fresh-water fishing, surveying and navigation, drawing and map-making, engineering (civil and hydraulic), natural history, mathematics, Dutch, bookkeeping, mechanics, drawing plans and making reports, hunting, etc.

The pupils must be eighteen or nineteen years old, and the work is divided into two sections, of which one is more advanced than the other.

Other Special Schools

There is a State Veterinary School, founded in 1821, at Utrecht, with a four-years' course; but the attendance is still very small.

There are also several schools of horse-shoeing.

Elementary Agricultural Education

For the great number of farm boys whose parents cannot afford to send them to a winter school, winter courses are given all over the country. In 1912–13, there were 406 winter courses in agriculture and 120 in horticulture.

These courses are organized partly by agricultural and horticultural societies and partly by the communities in which they are given, and they receive State aid. They are under the general supervision of the State teachers.

The instruction is given by teachers who have received, as the result of special courses of study and a special examination, a diploma to teach elementary agriculture or horticulture. They are assisted by general teachers, and, in the practical work, by veterinarians, gardeners, etc.

The courses include:

1. The principles of physics, chemistry, botany, and zoölogy, including the recognition of injurious animals and the diseases of plants.

2. Study of the soil, the working and improvement of the soil.

3. Plant culture.
4. Breeding of animals and dairying.
5. Fertilizers.

The courses in horticulture are the same, except that the cultivation of fruits, vegetables, flowers, and trees is substituted for strictly agricultural work.

The teaching is always based upon the needs of the province or the district in which it is given, and each course continues for at least two winters, with from 144 to 225 lessons a winter, given usually in the evening, twice a week.

The Government furnishes money for teachers' salaries, materials, etc., on certain conditions which keep the general management of the work in its hands. The community is expected to furnish a place for the classes, together with light and heat.

Courses in Agriculture and Horticulture for Adults

Some of these courses consist of from six to twelve lessons of two hours each for farmers and gardeners over twenty-one years of age. They are planned to give adults the most important principles of various branches of the work in which they are engaged. They are also open to the younger men who have a diploma of a winter course in agriculture or horticulture.

Other courses are arranged especially for young farmers and gardeners who have already studied at an agricultural institution.

In 1912–13, there were 130 such courses in agriculture and 78 in horticulture.

Courses for Soldiers in Garrison

These are given once or twice a week, in December, January, and February, about twenty hours altogether. Attendance is voluntary, but the soldiers who register must keep up the work.

The instruction is on various phases of agriculture. It is given by teachers with the required diploma to teach

this subject, and is under the State teacher of the district in which the garrison is established, and the Inspector of Agricultural Education.

Various Other Courses

(*a*) Courses in veterinary work are organized by provincial agricultural associations, aided by the State.

A tuition fee of $1.00 a person helps out with expenses.

The courses consist usually of twelve lessons of two hours each. The work is both theoretical and practical.

The teacher is a veterinarian who has the required diploma, under the direction of a local committee and of the State teacher of the district.

(*b*) Courses in horseshoeing have been given since 1885 in all the provinces but two. They are subsidized by the State or province. There is an entrance fee of from $1.00 to $4.00.

The theoretical teaching is done by veterinarians, and the practical work is given by blacksmiths.

Pupils must be at least twenty years old and of strong constitution; and must be able to read and write and to pass a practical examination in horseshoeing.

The work must be equivalent to four months, distributed over a period of two years.

In 1912–13, eighty courses were given in veterinary work and seventeen in horseshoeing.

(*c*) Conferences and Miscellaneous Courses.

Most of the conferences and courses given by the State teachers, milk inspectors, and other professors and teachers, at the request of different societies and associations, and subsidized by the State, form a part of the system of elementary education.

The Dutch Society of Horticulture and Botany employs two itinerant teachers who give in the various sections of the Society lectures and hold conferences on the cultivation of flowers, vegetables, and fruits.

The Association for the Encouragement of Bee-culture

in the Netherlands has its own teacher, who gives conferences on the subject.

Various other societies are doing similar work.

The Training of Teachers of Agriculture

Although part of the teaching is done by practical agriculturists, horticulturists, foresters, and veterinarians, and some of it by regular staff teachers, the greatest part is done by teachers who have special diplomas to teach secondary and elementary work in agriculture.

The secondary teachers are trained at Wageningen.

The elementary teachers, who already have a teacher's certificate, prepare for this special work by means of courses under the direction of the State teachers, with the assistance of the teachers in the winter schools, milk inspectors, veterinarians, professors in the secondary schools and gymnasia, and sometimes the head teachers who already have the diploma for agriculture and horticulture.

The work continues for three years, either through the year, largely on Saturdays, or in summer only. The time given is two and a half hours a week — 300 hours altogether.

The subjects studied for a diploma in agriculture are:

1. Chemistry.
2. Elements of the natural sciences.
3. Cultivation of plants.
4. Breeding.
5. Study of the soil of the Netherlands.
6. Composition, working, and improvement of the soil.
7. Agricultural machinery.
8. Use of fertilizers.
9. Dairying.
10. Methods of research and experiment.

The subjects for horticulture are, besides 1, 2 and 5: study of flowers and trees, more commercial work, and more practical work in chemistry and horticulture.

These courses are given in alternation in different

localities, in order to give a chance to all the teachers in the country.

SUMMARY

The points to be especially noted in the Dutch system are:

1. The intimate connection between the teaching and the practice of agriculture, which is brought about by the activities of the State teachers.

2. The separation of the agricultural from the academic system of education, in that the former is controlled by the Department of Agriculture, and not by the Department of Education.

This fact is the more remarkable, as Mynheer von Hoek, the Director-General, was himself formerly an elementary school teacher.

CHAPTER VII

AGRICULTURAL INSTRUCTION IN PRUSSIA

The German Ideal

ALTHOUGH Germany has increased in population from 20,000,000 to 64,000,000 during the nineteenth century, she is now almost independent of other countries in regard to the essentials of life, bread and meat. She supplies 85 per cent of the bread and 95 per cent of the meat consumed by her people, and it is her ardent hope and firm expectation that she will soon be able to supply it all.

According to the German ideal, self-dependence in essential foodstuffs is the first stage in the building of the state.

During the past forty years the continued prosperity of Germany has been threatened in two directions: first, by the tremendously increasing pressure of her population, and second, by the development of the industries at the expense of agriculture. Statistics have been collected which show that the healthiest element in the nation consists of the country people. For instance, 60 per cent of the farmers are physically fit for military duty while the percentage sinks to 50 per cent among mechanics and to 40 per cent or less among the population of large cities. It was also found that the natural increase in population, that is, the excess of births over deaths, in the country was 18 per thousand, 13 per thousand in the cities, and in Berlin alone, only 9 per thousand. Further, of 1,000 males who lived to the age of 70 or more, 280 lived in the country and only 189 in the large cities. On the other hand, there has been, with the development of nineteenth century industrialism, a constant movement from the country to the city, until the owners of great landed estates in Prussia have had to call in for-

eigners as farm hands. It was clear to the Germans that two things must be done to check the decay of the race that would inevitably set in if these conditions were allowed to persist:

One thing was to develop country life and so foster the growth of a healthy population. The other was to make the soil feed this growing population.

That Germany has succeeded in these two enterprises her resources now show well enough. The immediate cause of her success in this direction is the system of agricultural training that has developed during the past fifty years.

This system has grown up as a result of the perception that scientific farming is the only way of getting the utmost out of the soil and still preserving it for future generations, and that, to produce a nation of scientific farmers, agricultural education must be at once widespread enough to bring it within the reach of all, specialized enough to avoid overlapping and waste of effort, and thorough enough to secure the application of all the latest resources of science.

Survey of the System

The following list shows the number of different kinds of agricultural schools in Prussia, in 1914:

A. Advanced Schools.
  I. Department of universities 11
  II. Forestry schools 2
  III. Veterinary 2
B. Secondary schools.
  I. Gardening schools 3
  II. Agricultural schools 18
C. Elementary.
  I. General.
    1. Farming schools 10
    2. Winter agricultural schools 229
  II. Special.
    1. Meadow cultivation schools 6
    2. Garden, fruit, and wine 16
    3. Dairy schools 16

4. Courses for technical industries related to agriculture, as: manufacture of starch, sugar, vinegar, brewing, distilling, etc....	
5. Bee-keeping schools	4
6. Horse-shoeing schools	72
7. Poultry schools	7
8. Forestry schools for apprentices	4
9. Special schools, including three for fishing	9
III. Country housekeeping schools for women	8
1. Advanced schools	9
2. Stationary (schools and courses)	50
3. Itinerant courses	250
Total (excluding c. II. 4)	718

Besides, there are now 5,349 country continuation schools.

The number of students enrolled in all these institutions in 1908 was as follows:

A. Advanced schools	1,898
B. Secondary schools	4,293
C. Elementary schools	8,284
D. Country Continuation Schools	55,889

That these numbers would be enormously increased in 1914 is shown by the fact that the winter agricultural schools have grown during the past five years from 184 to 229.

The rapid development of the agricultural school system within the last forty years is shown by the fact that there were in 1875, aside from country continuation schools on which figures are not available, only 67 agricultural schools over against the 718 schools and courses in 1914; and that the attendance in 1880, aside from the continuation schools which were then purely general in character, was only 3,721, over against the 14,475 of 1908. Of the 3,721 pupils, only 1,581 were in the elementary schools while of the 14,475, 8,284 were in these schools.

In other words, while the number of schools has multiplied by more than ten within the last 29 years, and the number of pupils by four within the last 24 years, the ratio

of attendance between the higher schools and the elementary schools has changed so that instead of much less than half of the total number in the elementary agricultural schools, now much more than half can be found there. That is, agricultural education is more and more reaching the small-farmer class; and concurrently with this, the small farmers in Germany are growing strong at the expense of landowners on the one hand, and of industrial workers on the other.

In all the other German states, although equally detailed statistics are not available, there seem to be about 237 agricultural schools of different sorts, much less than half the number in Prussia alone, but making the total for all Germany not far short of a thousand. Can we conceive of such a change of attitude in our country, that, in addition to its present educational system, it should possess 15,000 schools, about 300 to a state, for the special purpose of teaching agriculture, and especially the elements of agriculture to those who chiefly need such training—small farmers?

Historical Outline of Agricultural Education

Advanced Schools

Until the beginning of the nineteenth century, such agricultural instruction as there was, was given at the universities and, as it was intended merely to train government officials, it was of no practical value whatever to the farmer.

The first courses were opened at the University of Halle about 1700, in connection with the subject of finance. In 1727, King Frederick William I established at Halle and at Frankfort-on-Oder, special chairs of finance, which included also the departments of agriculture and technology. Although this example was quickly followed until, in the course of the century, most of the German universities gave similar courses, no real headway was made until institutions for the special study of agriculture were founded.

The first of these was established at Celle, in Hanover,

by Albert Thaer, in the year 1802. His idea was that agricultural schools should be placed on farms where investigation and experiment could be carried on. King Frederick William III of Prussia was immediately interested in the plan, and began negotiations with Thaer, as a result of which he settled in Prussia and founded an agricultural school at Möglin, in 1807. This was very largely supported by the State, but remained otherwise a private institution, and was successfully managed until 1862, when it gave way before larger State institutions of the same kind.

The first State agricultural school was established in 1835 in connection with the University of Greifswald.

One after another institutions of this sort came into existence until in 1861 Justus von Liebig began an agitation to have them all made departments of universities. He urged that isolated agricultural academies could not keep up with the advance of science, or, through lack of means and of opportunity for satisfactory scientific stimulus, obtain and keep efficient teachers. The result of this movement was that various universities added departments or institutes while, on the other hand, several independent academies arose under the auspices of men who opposed the connection between agricultural schools and universities. The ground these men took was that if agricultural schools were organized on the same basis as other higher technical institutions, and properly endowed and equipped, they would be best fitted to give a complete agricultural training within a limited time, and that their usefulness had already been demonstrated by the agriculturalists and specialists who had gone forth from them.

In view of this conflict of opinion, the advanced schools of agriculture today include institutions of both kinds, as appears from the following table:

	Founded
1. Agricultural Academy of Bonn-Poppelsdorf	1847
2. Agricultural Institute of Halle (university)	1863
3. Agricultural Institute of Göttingen (university)	1872
4. Agricultural Institute of Kiel (university)	1873

5. Agricultural Institute of Königsberg (university).1876
6. Agricultural Institute of Breslau (university)....1881
7. Agricultural High School of Berlin.....1881
8. King William's Institute of Bromberg.....1906

The 1914 volume of Mentzel and Von Lengerke's Landwirtschaftlicher Hülfs- und Schreib-Kalender adds also:

	Founded
9. Seminar for Agriculturists in Schweidnitz.....	1911
10. Seminar for Agriculturists in Königsberg.....	1912
11. Institute for Practical Agriculturists and Stewards in Neuhaldensleben (date not given).	

This table shows that while there was a tendency for almost twenty years to make agricultural courses a part of university work, those most recently established, like those founded at the beginning of the century, are independent institutions.

Elementary Schools

The development of the lower schools of agriculture preceded by nearly half a century that of the secondary schools.

The idea of elementary agricultural education came from Switzerland, where Pestalozzi and his friend Wehrli had established for poor boys, especially orphans, schools in which the free time of the pupils was spent in agricultural work. They were called "Agricultural Schools for the Poor," or "Wehrli Schools."

One of the chief reformers of the German agricultural system, Johann Nepomuk Schwerz, saw the beneficial effects of these schools; and when in 1819, at the command of King William of Württemberg, he founded the Agricultural Academy at Hohenheim, he added to it an elementary agricultural school on the Wehrli plan. This institution, like those in Switzerland, was intended for poor orphan boys of fourteen.

Other schools of the same sort were soon established: at Schleissheim, in Bavaria, 1822; at Spitzings, near Königsberg, 1832; at Lichtenhof, near Nuremberg, 1833; and at

Zwâtzen, near Jena, 1856. This last was specifically called a "Wehrli School."

Farming Schools

As the farmers progressed in intelligence and prosperity, they began to see the value of education for their sons. To meet this demand, farming schools (*Ackerbauschulen*) were founded or reorganized out of Wehrli schools. They were situated on farms and aimed in a two-years' course to teach theory and practice together. The movement began in South Germany, but within twenty years it had spread to Prussia, and in the decade between 1845 and 1855, half a dozen such schools were founded within the kingdom. By 1876 there were 25 of them in all Germany.

But the plan did not work very well. The farmers, while they felt that their sons needed the theory of agriculture, also held that they could get the necessary practice on the home farm. Moreover, they could not easily do without their sons during the busy summer season.

Secondary Agricultural Schools

For these reasons the farming school became unpopular, and a new type of school arose which aimed to teach only the theory of agriculture. The first school of this kind was established at Hildesheim, in 1858, by Konrad Michelsen.

These schools increased in number until now there are eighteen of them; but although their official name is still "Agricultural Schools," they have emphasized the theoretical side more and more until they have become practically secondary scientific schools. Thus the problem of giving the farmer's son exactly the kind of agricultural training that he needed remained unsolved until almost twenty years past the middle of the nineteenth century.

Winter Agricultural Schools

The first step towards its solution was taken when in 1861 the Agricultural Association of Rhenish Prussia decided to appoint an itinerant teacher for the express purpose of

giving expert advice to the small farmers by whom that district was chiefly populated.

The plan worked so well that by 1868 five such teachers had been appointed—one for each district of the province.

The second step was initiated in 1863 when the Board of Directors of this same association hit upon the idea of establishing "a winter agricultural school," in which for five months of each year, November 1 to April 1, technical instruction in agriculture should be combined with continuation school work. The director of such a school, it was decided, should be the itinerant teacher for that district, and he should also give the technical instruction in agriculture in the school.

Here is found, for the first time, correlation of the advice and practical help given to adult farmers during the summer, with theoretical instruction to farmers' sons during the winter months.

The principles governing this plan for winter schools are stated by Dr. Oldenburg of the present Agricultural Department of Prussia, as follows:

1. The agricultural winter school can fulfill its purpose only in close connection with the system of itinerant teaching and really forms a preparatory stage to this.

2. It is desirable to keep as small as possible the district covered by the school and itinerant instruction, in order that the itinerant teacher outside of his school time may have as intimate and enduring an intercourse with his pupils as possible, may study thoroughly the agricultural situation of his district, and come into close connection with the farmers. Only in this way can he develop a truly useful activity.

3. A satisfactory solution of the problem of the director of the winter school and wandering teacher makes it necessary that he should possess a thorough practical and theoretical training.

The agricultural association for Rhenish Prussia, for its part, believes it has met this demand through its rules, according to which outside of a general education corre-

sponding to the position, at least four years of practical activity and two years of study in an agricultural high school must be required of the director.

4. As successful activity on the part of the winter school director and itinerant teacher is really conditioned by his actual knowledge of the agricultural situation and character of the inhabitants of his district, frequent changes in the position of winter school director must be avoided.

The plan conceived by the Rhenish Association in 1861 was not, however, acted upon until 1869. It happened, therefore, that two winter agricultural schools opened their doors, November first of that year, one at St. Wendel in Rhenish Prussia, independently, however, of the Agricultural Association, and one at Merseburg, in Saxony, under the auspices of the Agricultural Association of that district.

November 1, 1871, a second winter school was opened at Simmern by the Agricultural Association of Rhenish Prussia, and put under the direction of the itinerant teacher of that district, thus embodying, for the first time, the full conception of that type of school.

By 1876, when the Prussian government took over the school system, there were eight winter schools in the kingdom by the side of 25 farming schools which had had the start of them by about forty years.

The most striking fact in the history of German agricultural education since 1876 is the growth in numbers and popularity of the winter agricultural schools.

This is shown in several ways; for example, by a mere comparison of numbers:

	1876	1914
Farming Schools.....	25	12
Winter Agricultural Schools	8	229

In total attendance, the farming schools have increased only two-thirds again beyond what they had in 1876, while the pupils at the winter schools have been multiplied by 44.

Further, the secondary agricultural schools are beginning to add winter agricultural schools as departments. In this connection, it is interesting to note that a teacher in

the Winter Agricultural School at Herford has recently been appointed director of the Agricultural School at Hildesheim, the oldest and one of the most successful of the intermediate schools of this kind. As the Hildesheim school has combined with it a winter school, this appointment is, in itself, a tribute to the success of the winter schools.

Country Continuation Schools

One more type of school must be mentioned as playing a part in the development of German agricultural education, and that is the country continuation school.

Ever since 1875, the state of Prussia has taken upon itself the partial or entire support of such schools where communities, districts, or private enterprise could not undertake them. They were originally quite general in character until, after passing from the control of the Minister of Education to that of the Minister of Commerce, they came in 1895 into the hands of the Minister of Agriculture, Domains and Forests. At that time (1896–97) they were 875 in number, with an attendance of 13,317.

The very next year, however, attempts were made to introduce technical instruction in agriculture into these schools. We find 969 of them, with an attendance of 14,059, in which the training continues to be general, and also six, with an attendance of 80, in which agricultural instruction is given. In 1898–99 this number increased to 38, with an attendance of 606; but it was quickly seen that young boys with little or no agricultural experience could not profit much by such teaching. The number of schools attempting it was 33 in 1899, 22 in 1900, and in 1907 only 8, with an attendance of 161.

On the other hand, the country continuation schools on a broader basis had increased to 3,476 with an attendance of 50,185. At present (1914) there are 5,349 of them. Although they do not teach agriculture, the instruction that they give all centers about country life, and so prepares the way for the technical training of the winter agricultural schools.

Description of the Different Types of Schools

Advanced Schools

The agricultural institutes and departments in universities do as advanced work as is done anywhere in the world. They are much engaged in research; they train the directors and teachers of agriculture, surveyors and specialists in all departments of agriculture, besides men who intend to go in for scientific farming.

While the courses of study vary according to the chosen line of work, they include all branches of agriculture, as well as all the sciences that bear upon them.

The entrance requirements are the same as for any other profession represented at the university, but the length of the course depends upon the line of work chosen; that is, scientific farmers must remain at least four semesters to get a diploma; teachers of agriculture, six; surveyors and agricultural experts, four; but specialists in brewing and distilling, five, and in sugar-making, six.

Forestry Schools

Training in forestry dates back to the time of Frederick the Great, the first instruction being given in 1774. The first forestry school was established at Eberswalde in 1830, and another was founded at Münden in 1868.

The entrance requirements are the same as for a university, besides practical experience in forestry of at least seven months. The course lasts six semesters, and includes besides all branches of forestry and the sciences related to it, economics, law, and first aid work.

Veterinary Schools

Besides veterinary departments in connection with most of the universities, there are two higher veterinary schools, one at Hanover founded in 1778, and one in Berlin founded in 1790. They are on much the same level, in quality of work, as the other higher institutions, and the course of study covers seven semesters.

Garden, Orchard, Vineyard Schools

The management of garden, orchard, and vineyard is taught at these secondary schools:

The Royal School of Horticulture at Dahlem,

The Royal Pomological Institute at Proskau,

The Royal Institute for the Management of Orchard, Vineyard, and Garden, at Geisenheim.

Each of these has its own special province: the school at Dahlem trains especially landscape gardeners; the school at Proskau emphasizes the cultivation of nuts and fruits; the school at Geisenheim trains younger pupils who have had less preparation, and adds as its specialty the management of the vineyard and wine cellar.

Secondary Agricultural Schools

The eighteen agricultural schools proper, that is, the secondary agricultural schools, give in a three-years' course, a general training to the sons of prosperous farmers, together with the "einjährigen Schein," that is, the privilege of substituting one year of military service with the rank of petty officer, for the usual term and conditions.

They were planned originally to educate the mass of farmers; but they are all now striving to become full-fledged secondary scientific schools, as is plainly shown by their course of study, which follows:

1. Religion, obligatory for the pupils not confirmed; with others, optional with the parents	1	1	1
2. Language (German and one other foreign language, English or French)	9	9	9
3. Geography and history	4	4	4
4. Mathematics	5	4	4
5. Natural science—			
a Zoölogy and botany	4	4	2
b Physics	2	2	2
c Chemistry and mineralogy	2	4	4
6. Agriculture—			
a Theory of plant production *b* Theory of animal production	4	4	2
c Business management			4
7. Drawing	2	2	2
8. Turning and singing	3	3	3
Total	36	37	37

SHOWING BUILDING, TEACHER AND PUPILS—AGRICULTURAL WINTER SCHOOL OF HAGEN, PRUSSIA

In 1908–09 they had an enrollment of 4,293 pupils of whom scarcely more than half, 2,207, were taking agricultural courses.

As they have departed so far from their original aim, they cannot, even though they are doing good scientific work, be regarded as important factors in the agricultural development of Germany.

Farming Schools

The farming schools take boys between fifteen and twenty; and aim, in a course extending over a year and a half or two years, to give them practical as well as theoretical training. The school is always situated on a farm, and the director of the school is also manager of the farm, which he sometimes owns and sometimes rents. The pupils live in dormitories, and work the farm under the guidance of the school director. From the necessities of the case, most of the theoretical work is done in winter and most of the practical work in summer. The boys pay tuition, but the fact that they work on the farm keeps the sum low, and there are some school scholarships and half scholarships.

The farming schools, almost without exception, receive aid from the State or from corporations, and they are under the supervision of the Department of Agriculture, Domain, and Forests.

Winter Schools of Agriculture

While the winter schools of agriculture are by far the most important feature of agricultural education throughout all Germany, it is in Prussia that they have been most thoroughly studied; and conclusions for the 229 winter schools of this kingdom hold also for the other states of Germany.

The first point of interest is their relation to the small landowner whose needs they meet so perfectly. They are well attended for several reasons:

1. They are open only in winter when farm boys can be best spared.

2. They are so numerous that the boys need not go far from home.

3. They are cheap.

4. They are in the charge of an itinerant teacher whose advice is of the greatest benefit to the small farmer in cases where an estate owner would hire the service of an expert.

Nearly all Prussia is divided into small farms. Only 1.1 per cent of the land is in estates of more than 250 acres; 84.9 per cent consists of holdings of from 1 to 50 acres. Only about 15 per cent, consisting of farms between 50 and 250 acres, is owned by men who send their sons to the higher and secondary agricultural schools. For the great majority, nearly nine-tenths, the winter schools are the only possible way of getting a technical training in agriculture.

There can be no question but that in the winter agricultural school the Germans have found the best type of education for the man of limited resources and small means.

The plan is that the country boy, after finishing the elementary school course, shall be urged—or, as in many places, compelled—to attend a country continuation school for one or two winters while he is gaining practical experience in farm work, and shall then attend a winter agricultural school for two more winters, to build upon the basis of his own experience a theoretical knowledge of agriculture that shall, in turn, enable him to understand and make better use of his experience.

In this way theory and practice are made to reenforce each other; but they are not taught at the same time. The attention is focused in winter on theory, and, in summer, on practice, as far as possible still under the guidance of the director of the winter school, who, in summer, becomes the itinerant instructor for the district, and keeps in touch, both by writing and by personal consultation, with the pupils in his classes.

The time of instruction averages five months a year, November 1 to April 1, and about 34 hours a week.

The attendance averages about 38 to a school.

There are two types of winter schools:

I. *One-Class Schools.* In these, all the pupils are in the same class. The work covers two years, the same group of subjects being given alternate years. As either half of the course may be taken first, there is no difficulty about entering. This type is especially suited to small schools where only one teacher is available.

II. *Two-Class Schools.* In these, the work of two years is carried on simultaneously in two classes, one of which is more advanced than the other, and two teachers are required.

The courses of study in the two types of schools vary only slightly in different localities. The following arrangement is fairly typical:

TWO-CLASS

FIRST HALF-YEAR

	Hours a week
German and business composition	8
Arithmetic	3
Religion	1
Physics	2
Chemistry (inorganic as applied to agriculture)	6
Geometry, surveying, leveling and drawing	3
Law and administration	2
Breeding and dairying	8
Poultry, fish and bee culture	1
Total	34

SECOND HALF-YEAR

German and business composition	5
Agricultural mathematics	3
Physics and meteorology	2
Chemistry (organic)	2
Geometry (etc., as above)	3
Agriculture (working ground, fertilizing, weeding, etc.)	5
General and special culture of plants, fruits, trees	6
Breeding and care of animals	3
Business and economics (including bookkeeping)	5
Total	34

ONE-CLASS

	Hours a week 1st yr.	2d yr.
Chemistry (org. and inorg.)	4	3
Physics	2	2
Breeding and care of animals	0	8
General plant culture	6	0
Special plant culture	6	0
Business, economics, bookkeeping	0	5
Agricultural mathematics	0	3
Agricultural law	2	0
German (especially agricultural and forestry papers) and business composition	7	7
Mathematics	3	0
Geometry (etc. as before)	2	2
Religion	1	1
At the disposal of the director	1	3
Total	34	34

A tuition fee averaging from 20 to 30 marks ($5.00 to $7.50) for the entire course, is usually charged; and the

pupils must provide their own board and lodging. As these schools, however, are for the most part established in small towns, this expense is not very great.

The winter schools are so distributed that each draws upon its own neighborhood for pupils, and adapts its teaching to the needs of that neighborhood, omitting all such subjects as do not come up in practical problems in that locality.

The director of a winter school must have passed the final examinations of a higher agricultural school, or the state examination for that special work. He himself teaches the agricultural and scientific subjects, but often gets outside help in the teaching of religion, the elementary school subjects, veterinary science, etc. Usually local men, such as government officials, veterinaries, foreigners, mechanics, clergymen, and elementary schoolteachers can be found to do this work for a small sum.

The winter schools are under the supervision of the Department of Agriculture, Domains, and Forests, but although they receive State aid, they are not State institutions, being founded and partially supported by city corporations, chambers of commerce, etc. The immediate supervision of each school is in the hands of a special board of trustees.

Summer Activities of Itinerant Teachers

Quite as important as the work of teaching during the five months of winter, are the duties performed by the directors and their assistants during the summer months when the schools are closed.

Their activity is many-sided. They must, in the first place, stimulate the organization system of agricultural associations by explaining the aim and work of the Department of Agriculture, Domains, and Forests, and of the agricultural corporations working with it. They must encourage the offering of prizes for agricultural products, cattle, hogs, etc.; they must keep the herd books; they must give instruction on ways of protecting plants, fighting pests, etc.

They must continue to keep in touch with their pupils by correspondence, and by personal interviews when possible, to see that the theoretical knowledge gained the winter before is being properly applied.

They must also instruct the farmers of the district who have not attended a winter school. This teaching must be given in a very personal way, by advice in the stable, farmyard, and field, as well as at the meetings of agricultural associations. The itinerant teachers must also give special courses bearing directly upon the agricultural needs of the district.

The following list of experiments which have been carried on in the Rhine Province since the beginning is instructive:

Experiments in cultivation: Rye, 849; fodder plants, 149; wheat, 317; barley, 839; oats, 866; mixture grains, 23; fodder turnips, 272; potatoes, 1,281; garden vegetables, 32; tobacco, 15. Experiments in fertilization ground: Rye, 211; wheat, 52; barley, 27; oats, 252; fodder turnips, 110; potatoes, 263; meadows and fields, 450; fodder plants, 77; vegetables, 64; wine and fruit culture, 142; tobacco, 70; other things, 170.

Special Itinerant Teachers

Prussia has added to the itinerant teachers who are directors of winter schools, a system of itinerant teachers who are employed at large throughout the year. They are usually specialists in some field of agriculture. The following will show the nature of this work: 10 general agricultural experts; 1 specialist in small grains; 21 specialists in cattle breeding; 2 specialists in breeding hogs; 9 specialists in dairying; 5 specialists in breeding horses; 3 specialists in horseshoeing; 21 specialists in fruitraising; 2 specialists in fruit and wine production; 4 specialists in wine production; 1 specialist in raising flax; 2 specialists in organizing agricultural associations; 1 specialist in bookkeeping; 8 specialists in raising poultry. This makes 90 in all, to which should be added 269 specialists who teach in the winter months.

Special Agricultural Schools

The most remarkable fact about the special schools is that they should exist at all — that in a tract of land scarcely more than one-fifteenth the size of the United States there should be 126 schools for special branches of the art of agriculture.

Some of these schools are very old, as, for instance, the school of horseshoeing at Hanover, which was established in 1692; but most of them have arisen during the great period of development which began about fifty years ago.

The first school for meadows was established at Siegen in 1843, and developed out of an agricultural Sunday school, with a weekly course of three hours. The instruction is now given during the week and is graded. The work is continued for four or five years, four hours a week, together with forty days of practical work during the last year. The instruction deals with all problems of drainage and irrigation, and with the improvement of meadowland in general.

The oldest school for the management of gardens, orchards, and vineyards was established at Koschmin in Posen, in 1867. These schools vary widely in hours and schedules, but show a tendency to imitate the winter schools of agriculture, four of them recently established being planned in this way.

The dairy schools have three purposes: (1) to train young men and women to manage or work in large dairies; (2) to serve as experiment stations; (3) to serve as bureaus of information on problems of dairy work. The regular course consists of from one to two years, according to the preparation of the pupil, and there are also short courses on special phases of the industry. The oldest dairy school is that at Proskau, founded in 1878, which admits women as well as men; and there are also four schools, of which the oldest was established at Freystadt in 1879, for women only.

The schools for training in special industries connected with agriculture, in addition to training experts, have the

extremely practical aim of helping workmen already engaged in these industries. They deal with brewing, distilling, yeast-making, sugar-making, starch-making, vinegar-making, baking, the miller's trade, etc. The oldest of these schools seems to be that for distilling, which was opened in 1875. The courses vary from five or six semesters for a complete training to a few weeks for people who wish to improve their work.

The first school for bee-keeping was opened in 1886. The length of the course depends upon the previous knowledge and the purpose of the student.

The horseshoeing schools form quite an elaborate system by themselves, with a section for blacksmiths and one for teachers of horseshoeing. The shortest courses for blacksmiths last three months or more, with theory and practice together; for teachers, four months.

The first poultry school was established as late as 1890. The length of the course varies from a week to half a year.

The schools to train apprentices for forestry work have a thorough course that lasts a year. They teach hunting, the culture of fruits, fish, and bees, gardening, agriculture, and all sorts of forestry.

Country Continuation Schools

The country continuation schools really do little more than review and fix the studies taught in the elementary schools, always, however, with an agricultural bias. The work is done especially in winter, several evenings a week, or on Sunday afternoons.

The great increase in number and attendance of these schools during the past decade shows the zeal of the German country people in education.

Courses for Soldiers

The latest enterprise in agricultural education is teaching soldiers in garrison, which, at the wish of those representing the agricultural interests of the country, was inaugurated by the Government in 1908. The plans of the

military authorities seem to be meeting with approval; but it is still too soon to judge of results.

Summary

Out of the bewildering mass of statistics that the Germans have set down in their books on agricultural education stand forth several conclusions from which there is no escape:

(1) There is a vital connection between the indisputable fact of the enormous increase of agricultural prosperity in Germany, and the agricultural schools, which take care of the needs of every class.

(2) It is German "system" — that is largely responsible for the thorough working out and success of these schools.

(3) It is the elementary technical schools, the winter schools of agriculture, which more than all the others are increasing the intelligence and skill of the small farmers.

(4) It is by educating the small farmers and encouraging them to remain in the country and develop all the resources of the country that the life of a nation is maintained and prolonged.

CHAPTER VIII

SCHOOLS OF COUNTRY HOUSEKEEPING

GERMANY

I. ADVANCED SCHOOLS

THE idea of establishing special schools for teaching country housekeeping seems to have originated less than twenty years ago. In 1895, a society was organized in Hanover for the special purpose of training women of good position in this work. The plan was that they should study to become not merely housewives and housekeepers in country establishments, but also matrons of institutions, managers of farms, and teachers of country housekeeping in elementary schools of the same kind, which in that very year the state was beginning to establish and supervise.

The first school founded by this society was opened at Nieder-Ofleiden, in Hesse, in 1899, and was moved in 1900 to Reifenstein. In 1901, a second school was opened at Obernkirchen, in Schaumburg; in 1905, a third at Maidburg-Mrotschen, in Posen; and in 1908, a fourth at Scherpingen, in West Prussia. Since then, others have been added, at Bad Weilbach, at Mallinckrodthof, near Paderborn, at Bärwalde and Metgethen, near Königsberg, and Bad Lauterberg.

These schools are all governed by the society that founded them; but the course of study must be approved by the Minister of Agriculture, Domains, and Forests, as well as by the Minister of Religious, Educational, and Medical Affairs.

Candidates for admission must be at least eighteen years old, and must have completed the course of a higher girls' school, or show equivalent training.

The course consists of two semesters of twenty weeks each, for students who aim to be housekeepers, with a third semester given at Obernkirchen, Maidburg, Bad Weilbach, Mallinckrodthof, and Bärwalde, for teachers of domestic science in the elementery and intermediate schools.

The course of study for the three semesters is as follows:

Subjects	1st Semester	2nd Semester	3rd Semester	Total No. of Hours
1. *Housekeeping and Related Subjects.*				
Cooking	10	10	10	600
Housework, including washing and ironing	6	8	..	180
Handicraft	3	2	..	100
Nature Study.				
a. Physics	1	1	..	....
b. Chemistry	1	1	2	160
c. Botany and nutrition	1	1	..	....
Domestic arithmetic and bookkeeping	1	1	1	60
Pedagogy	1	1	2	80
Practice in teaching and in methods of work	..	..	9	180
Hygiene	1	1	1	60
German and civics	2	2	..	80
Drawing	..	2	..	40
2. *Agricultural Subjects.*				
Poultry-raising	..	1	1	40
Dairying, including care of pigs	1	1½	1	70
Gardening, including bee-keeping	1	1½	1	70
Total	29	29	28	1,720

Until 1909 this training had to suffice also for teachers in schools of country housekeeping; but in that year a fourth semester of training in agricultural subjects was opened to them at Obernkirchen and Maidburg, and they were given the opportunity to take another examination for a special certificate as teacher of country housekeeping. For this, however, was there required further at least one year of experience in a responsible position in a country household, as well as a year of probation in a school of country housekeeping.

The course of study for the additional semester of twenty-two weeks is as follows:

Subjects	Hours a Week		Total Number of Hours
	Teaching	Practical Work	
Pedagogy and method	2	..	44
Practice in teaching	..	5	110
Poultry-raising	1	3	88
Dairying	2	2	88
Care of pigs	1	1	44
Flower, fruit, and vegetable culture	5	7	264
Bee-keeping	1	..	22
Household arithmetic and bookkeeping	2	..	44
Country social service	2	..	44
	34	18	748

The support of the schools is almost equally shared by the State, and by individuals, with a little aid from provincial societies and associations.

The attendance in four schools 1908–9 was as follows:

Reifenstein	40
Obernkirchen	44
Maidburg	24
Scherpingen	16

The total number who have attended all the schools for 1 year or more, since their foundation, is 675.

II. Elementary Schools

When in 1895 the State decided to establish elementary schools for the special purpose of teaching country housekeeping, it was found that there were already sixteen schools in which instruction in this subject was given. All but four of these, however, were conducted by religious bodies, and the practical work was entirely subordinate to the cultural and religious teaching.

The first step towards founding special elementary schools for country housekeeping was taken by a society for schools of domestic science in Frankfort-on-the-Main, in 1893. At that time it was pointed out that country girls especially needed more training than they could get at

home, in that they went out to service, and that neither on large estates nor in the city could they have the chance to learn anything about the kind of housekeeping that would fall to their lot when they returned home to settle.

The State took up this work in 1895, both in the way of helping to support such schools of the kind as had been founded by religious bodies or provincial societies, and also in establishing and helping to maintain other such schools wherever they were needed. By 1908–9, 30 additional elementary schools of country housekeeping had been established throughout Prussia, under the control of the Department of Agriculture, Domains, and Forests.

The purpose of these schools is to take country girls who have finished the work at general elementary schools and at country continuation schools, and give them a sound training, at once theoretical and practical, in all kinds of work that the country housekeeper expects to do, or may be called upon to do.

The age for admission is usually between fourteen and sixteen with a tendency toward the higher age limit.

The only requirements, beyond the education named above, are good character, and mental and physical capacity for the work.

The length of the course varies. In more than half—28 schools out of 46—it is about a year; in 15 others it is from 5 to 6 months. Several schools have 3-months' courses; and 2 only give an opportunity to continue the work for two years. Several have both longer and shorter courses.

A typical course of study is as follows:

A. *Practical work.*

1. Cooking, with special reference to country conditions, setting the table, serving, etc.
2. Preparing and preserving food, that is, salting and smoking meat, making sausage, baking bread, canning vegetables and fruits, butter and cheese making, preserving fruits, drying fruits, making fruit and berry cordials.

3. Washing, mangling, and ironing.
4. Women's handicraft (mending, darning, knitting, crocheting, sewing by hand, sewing on the machine, finishing wash and house dresses).
5. Elements of domestic hygiene and of the care of the sick.
6. Fattening of pigs and care of poultry.
7. Care and fattening of calves.
8. Gardening.

Pupils who cannot milk are usually given the chance to learn properly.

B. *Theoretical training.*

1. Elements of dietetics, food values, the preparation and preservation of food.
2. Essentials of hygiene and nursing.
3. Milking, handling, and improving milk.
4. Care and fattening of calves.
5. Feeding and care of pigs.
6. Raising and care of poultry.
7. Care of the garden.
8. Heating and lighting.
9. German (business composition).
10. Mental arithmetic and simple bookkeeping for the house and dairy.
11. Religion, history, social science, civics.
12. Gymnastics and music.

Nearly all these schools are residential. The fees for a course vary from 25 marks (about $6.50) to 650 marks ($162.50). Until these can be dispensed with, only the daughters of well-to-do farmers are able to take the work.

In 24 of the 46 schools in 1908–9, the attendance was between 20 and 40; largest attendance was 88; the smallest 9. The total attendance at these schools, between the opening of the first institution of the kind at Hanover in 1868 and 1908–9, was 17,650. From the figures available, it would seem as if less than a thousand pupils received their training before the reorganization of the schools in 1895.

III. Itinerant Schools

These schools are intended for the grown daughters of poor farmers and country tradesmen. They have no fixed buildings, but move about from place to place in order to bring the training that they offer within the reach of all.

At the time when "Housekeeping Schools" first appeared in statistical lists, in 1894, there were only two "flying" or itinerant courses in rural districts, both in Hesse-Nassau.

The first of any importance seems to have been established in the district of Siegen in 1895, but by 1904 only four others had come into existence. Between 1904 and 1908, however, the idea spread rapidly, and in 1908, there were 44 altogether listed in Prussia. In 1913, this number had increased to 283, with 51 in the Rhine Province alone.

These schools are supported almost exclusively by women's clubs and by district associations.

In the Rhine Province, where the idea became most popular because of the preponderance in that district of small farmers to whose needs it was especially adapted, the Chamber of Agriculture at Bonn has drawn up a plan for the establishment and government of such schools, which has done much to secure a uniform system of instruction.

The teachers who conduct these courses are trained in schools of country housekeeping; but for special subjects the directors of the nearest winter schools, itinerant teachers, and local physicians are called upon.

The schools move from place to place within the limits of a fixed district (*kreis*), and remain for eight weeks in one place.

The minimum age limit is, as a rule, sixteen years.

The work, theoretical and practical together, continues for several hours at a time, both during the day and in the evening. During the day the pupils are given luncheon and coffee prepared by themselves.

The course of study is as follows:

1. Cooking of simple dishes, baking, preserving for the sake of economy, invalid cookery, and management of the pantry.

2. Food values, management and preservation of the different kinds of nourishment, calculation of the cost of the foods prepared, and practice in housekeeping books.
3. All kinds of cleaning in the household, setting the table, serving, etc.
4. Sewing, mending, darning, cutting out, washing and ironing.
5. Breeding, care and feeding of cattle, dairying, care of pigs and goats, poultry-raising, vegetable and flower growing.
6. Hygiene and dietetics and first aid to the injured.

A very small fee is charged for meals and tuition, usually from about 10 marks ($2.50) to 24 marks ($6.00), for the entire course of 8 weeks.

This does not cover the expenses. The community furnishes the rooms with heat and light, and the society that supports the school meets the deficit unless this is covered by government subsidy.

Ireland

Reference has been made to the fact that when the Albert Agricultural College, Glasnevin, and the Munster Institute, Cork, were handed over to the Department in 1900 by the Commissioners of National Education, alternate courses of instruction were being held at both these institutions for males and females. It has already been shown how the Albert College has been reorganized, enlarged, equipped, and staffed for male students. The Munster Institute, Cork, has been similarly treated with a view to training girls. The demand for admission from residents in all parts of Ireland soon increased, and it was found necessary to enlarge the premises, and at the same time the Institute was very fully equipped, so that a complete course of training could be given to young women who were anxious to qualify for employment under the Department and under the local authorities in various schemes of instruction in phases of country housekeeping. Additional teachers have

been appointed, and accommodation is now provided for fifty pupils. Some idea of the demand for admission may be gained from the fact that from fifteen to eighteen months must elapse between the time that an intending pupil makes her application for admission and the time when her turn for admission comes round. Though the school is not advertised there are on the Department's books awaiting admission seldom fewer than 200 girls.

The course of training includes:

(1) The practice of dairy work.

(2) The working of a dairy farm, including the feeding and management of cows and pigs, the cropping of small gardens, and the manipulation of bees.

(3) Poultry-keeping.

(4) Household work, including plain cookery, needlework, and laundry work.

The chief aim and object of this course is to so train young girls that when they return to their homes they may make better and more economical use of the materials they have at hand. A more extended course is given to the best pupils so that they may become qualified to act as teachers.

Four sessions are held annually, each of about eleven weeks' duration. The fee for one session is three guineas, a very moderate sum for education, board and lodging, and medical attendance.

An examination is held at the end of each session. All students who attain the necessary standard at the end of the first session may be readmitted to a second. The standard is such that practically every student who so desires may remain for a second session. It is considered that the six months' course of training thus obtained is sufficient for the great majority of students who, as mentioned above, desire to return to their homes, or for those who, as happens in some cases, desire to obtain situations in private houses as dairy maids, etc. The examination, held at the end of the second session, is, however, so designed as to enable the examiners to pick out those students who are likely to

become capable teachers under the county instruction schemes. An examination of a similar character is held at the end of the third session, and no student is given a certificate qualifying her to act as a teacher unless she has been in residence in the school for at least four sessions, and in most cases the course is extended to a fifth, or even a sixth, session.

A limited number of free and half-free places are awarded to students who display special merit at the terminal examination of the first session to enable them to avail themselves of a second session entirely or partially free of expense. A few similar places are also offered at the end of the second session.

The staff of the Institute consists of:

(1) A superintendent, who, in addition to being responsible for the working of the Institute and farm, also gives instruction in general farm management.

(2) A matron, who in addition to her duties as such, gives instruction in laundry work.

(3) A teacher of butter-making and dairy management.

(4) A teacher of poultry-keeping.

(5) A teacher of cookery and needlework.

(6) An experienced gardener who gives instruction in horticulture and bee-keeping.

A limited staff of domestic servants is kept, as the students themselves perform the routine work of the Institute, such as general household work, washing and laundrywork, milking and separating, and butter-making.

The farm attached to the school comprises about 120 acres. In addition to the educational uses to which it is put, the farm serves as a center for the housing and distribution of stock, in connection with the county schemes for encouraging improvement in the breeding of cattle, pigs, and poultry.

As in the case of the Albert College, Glasnevin, and the three Agricultural Stations, the Department have enlarged and remodelled the residential and educational buildings.

It is unnecessary to enlarge on the excellence of the instruction and training given in this Institute; the increasing demand for admission, to which reference has been made, speaks for itself.

In view of the great need for this kind of work, the Department have established also the Ulster Dairy School on a large farm about three miles from Cookstown, County Tyrone.

It is conducted on much the same plan as the Munster Institute, and also trains especially girls who wish to become dairy maids in creameries. Candidates for this kind of work must have attended two terms, either at the Ulster School itself, or at some School of Rural Domestic Economy. They are then admitted to a third term at the Ulster School. On completion of this course, a limited number of pupils are placed in selected creameries for learning the practical work. These receive a maintenance allowance of $2.50 a week, besides free instruction at the creamery for twenty weeks.

The Department have also provided courses for girls in rural domestic economy at Portumna, and Clifden, Co. Galway; at Westport, Claremorris, and Swinford, Co. Mayo; at Loughglynn, Co. Roscommon, at Killeshandra, Co. Cavan, and at Ramsgrange, Co. Wexford. It is the Department's wish that these should be day rather than residential schools, so as to keep the pupil while receiving instruction in close touch with the life and circumstances of her own home. It is hoped that thus on the one hand a more direct improvement in the home life of the people may follow from the influence of the teaching, and on the other hand that the danger of the girls becoming unwilling to live at home, which so often arises from the teaching of a training school, may be avoided. These schools are still experimental, but should they prove successful it is proposed to provide further facilities for local instruction of this nature.

But schools of rural domestic economy are not the only provision which the Department have made for instruction

to girls. Out of the funds at their disposal the Agricultural Board annually vote a sum of $67,500 to be utilized by the Technical Instruction Branch of the Department in the teaching of domestic economy by a system of itinerant instruction.

Further, the Department have made very liberal provision in coöperation with local authorities for the instruction of girls in poultry-keeping and dairying.

Denmark

In democratic Denmark the education of country girls in housekeeping has followed as a natural appendix to the training of country boys in agriculture.

As the people's high schools and agricultural schools are in session only from about November until April or May, when most of the pupils must return to work on the farm, Danish frugality, within recent years, conceived the idea of using the same buildings and to some extent the same teachers in giving short courses very similar to those given to the boys.

These are, however, viewed as preparatory to technical work in country housekeeping, which forms a section of the chief agricultural schools, as at Dalum, Odense, and Kaerhave.

Most of the courses for girls and women are given for three months in the summer, from May to August, or five months, May to October; but at Kaerhave, for example, there is also a winter course from November through April, corresponding to that in agriculture for men.

Besides these opportunities for somewhat thorough instruction, there are short courses of two weeks, eleven days, and even one week, at different times of the year, planned to give practical help in special phases of country housekeeping to women who have very little time to spare.

The longer courses include the following subjects:

Hygiene, gymnastics, Danish (reading and composition), arithmetic, history (the history of church, civilization, and literature, as well as of Scandinavian sociology and geog-

graphy), singing, chemistry, (especially the principles of nutrition), physics ("every day physics"), housekeeping the (preparation of food, baking, butchering, and all other work connected with cooking, drying, preserving and pickling fruits and vegetables, etc.), handwork (sewing, knitting, darning, mending, making patterns, plain sewing, cutting out, dressmaking, embroidery, etc.), housekeeping (chamber work, care of fabrics, washing, sweeping), care of the sick and of children, home industries (brush making, pasteboard work, shoe-soling, and wicker work), agriculture, plant culture, care of domestic animals, and household bookkeeping.

Practical work is given in cooking, handwork, housework, care of domestic fabrics, industries, gardening, etc.

This course perhaps is typical and is noteworthy on account of the addition of home industries to the usual subjects taught in connection with housekeeping.

In the short courses for women the subjects emphasized are: cooking, pattern-making, care of the sick and of children, of the smaller domestic animals, gardening, etc., subjects in which the skill of the average housewife particularly needs strengthening.

The fees are very moderate. For instance, at Kaerhave the entire charge for the long courses is 24 *kronor* a month (about $6.50), and the short courses are proportionately cheap. But in no case need poverty prove a bar to the ambitious country housewife, as the community in which she lives will pay the small sum that will enable her to increase her efficiency as a member of society.

The Netherlands

The training of country girls and women to be mothers and housekeepers is only just beginning.

Aside from a private school at Groenlo, the first step was taken with the organization in 1909, in connection with the winter school of agriculture at Veendam, of a two-years' summer course in domestic science. The Society of Agriculture and Industry of the Province of Groningen interested

itself in the new institution and in 1910 a committee of that body made a report on courses in country housekeeping abroad and the best ways of organizing such instruction in the Netherlands, and especially in Groningen.

The same year courses were given also in the provinces of Zeeland and Gelderland, in Zeeland with special reference to dairying. The Association for Encouraging Agriculture in South Holland also appointed a committee in 1910, which proposed a group of courses, A, B, and C, which were tried out in 1911.

Course A, given in Alkmaar, continues for five years; B, for four years; and C is planned for two years on the same basis as the winter courses in agriculture and horticulture. Of the three courses, B is felt to be still on trial, while A and C are considered successful, especially the latter.

Since 1910 the number of courses in country housekeeping has steadily increased. In 1911–12, for the first time, short winter courses were given for the wives and daughters (over eighteen years old) of working men. These were everywhere well attended and in some places were extraordinarily successful.

There is a school of country housekeeping at Lierop, in Brabant, and in several other places.

In 1910 the Dutch government sent two country girls who had completed courses at different schools of home economics, to study the training in country housekeeping given in Belgium, Germany, and Denmark.

In 1913, as a result of their report, the De Rollecate School of Home Economics, at Dedemsvaart, in Overijssel, was founded to train women as teachers of this subject.

The school is situated in the country, in order to keep before the pupils the characteristic problems of country life.

There is provision for eight or ten pupils who, with a part of the staff, live as a family. The expenditure for food is in the hands of members of that family. There is a kitchen garden connected with the school, and the owner of the

big farm "De Rollecate" has put this farm at the disposal of the teachers.

The length of the course is one and one-half years. In fixing vacations, preserving time is taken into consideration.

Candidates for admission must have a "housekeeping" diploma from a housekeeping school, or a certificate from a competent person to show that she has knowledge equivalent to this. She must have also the diploma of an elementary school, or of a similar institution.

Preference is given to girls of twenty or more who have been brought up in the country.

The subjects for study are: cooking, housekeeping, laundry, food values, study of foods and kitchen utensils, household economics, study of materials with reference to domestic economy, theory of laundry work, physics, chemistry, botany, zoölogy, gardening, hygiene, and pedagogy, theoretical and practical.

All the teaching is with immediate reference to rural conditions and needs.

The tuition fee for the entire course is seventy-five florins ($30.00).

CHAPTER IX

VOCATIONAL GUIDANCE IN LONDON

A FEW years ago the London County Council made an investigation of the occupations followed by boys leaving school. This investigation showed that about half of these boys entered what are commonly known as blind-alley jobs, while not more than one-third found work which could be regarded as skilled employment. They are likely to continue to do this, no matter what organizations exist for vocational guidance. Boys must get work of some kind, and the number of really good openings is strictly limited. The problem, therefore, is not to determine whether vacancies of the less satisfactory kind shall be filled, but whether all boys shall be under some form of supervision with a view to lessening the waste of human beings, due to haphazard methods of securing employment.

In order to deal with this problem an "Advisory Committee for Juvenile Employment" has been organized to work with the juvenile branch of the labor exchange established by the Board of Trade. The problem of the committee is stated as follows:

"Boys and girls leave school at 14 years of age or earlier, and large numbers of them pass without guidance and without special preparation into the world of industry. They are faced with a variety of openings of which some, though immediately lucrative, are not beneficial, and some are permanently detrimental to character or to physique. It occasionally happens that there is an interval to be bridged over by some temporary employment between the age of leaving school and the age of entry into a skilled trade. Even in the cases where the choice of employment is not determined by the pressure of need, parents have but little opportunity of estimating the prospects of other callings

than their own; while the facility with which boys and girls can in many districts obtain employment tends to make them careless of keeping a particular job and indifferent to any form of training that might counteract the latent disadvantages of some of the jobs which they obtain. The readiness with which they pass from one situation to another may make an individual employer disinclined to undertake the initial cost of training those who, when their training is completed, will seek higher wages elsewhere."

A mere labor exchange, where employer and applicant for work are brought together, will not meet the situation. The advisory committees should place within the reach of parents detailed information as to the opportunities of employment; they should warn them against placing their children in work unsuited to their health or capacity; they should call their attention to the poor prospect which high, immediate earnings, coupled with lack of training, afford. They may assist the employer in getting into touch with boys and girls suited to their requirements, and may, in a measure, check the tendency to wander from job to job, so common among boys and girls, and so fatal to the ordinary discipline of the office and the workshop.

The London Juvenile Advisory Committee is appointed by the Board of Trade and Consists of:

(1) Six persons nominated by the London County Council.

(2) Six persons possessing special knowledge of juveniles and juvenile employment.

(3) Three employers.

(4) Three work people.

It is the duty of this committee to advise the Board of Trade in regard to all matters relating to the management of the juvenile side of the labor exchanges, and in particular to form committees in connection with each local labor exchange and to supervise the work of such local committees.

There are eighteen local advisory committees in the county, appointed by the London Advisory Committee, subject to the approval of the Board of Trade. Each

committee consists of not more than thirty persons. Of these ten are nominated by the London County Council and two by the "Consultative Committee of London Head Teachers," while there must be not less than four representatives of employers and four representatives of work people. The remainder is made up of persons specially interested in the welfare of youth, and includes teachers and social workers.

These local committees endeavor:

(1) To focus the existing scattered efforts of different organizations dealing with juvenile employment in the locality.

(2) To organize a systematic procedure for obtaining, in connection with teachers and care committees, knowledge of the character, qualification, and home conditions of children about to leave school and about to register at the labor exchange as applicants for employment.

(3) To form subcommittees to attend at the exchanges for the purpose of interviewing applicants and their parents in order to:

a. Give advice with regard to employment in general and with regard to partiuclar vacancies.

b. Endeavor to secure attendance of boys and girls at evening continuation or technical classes.

(4) To secure in coöperation with the labor exchange authorities that:

a. Employers are informed as to the work of the local committee.

b. Adequate information is obtained as to the conditions and prospects of particular trades and situations.

c. The records of all information relating to children, employers, and employment are so kept as to be readily available for the purposes of the committee.

(5) To organize, in coöperation with care committees, boys' and girls' clubs, and institutions for the welfare of juveniles, a system for keeping in touch with such boys and girls as, when placed, may be thought to need supervision.

(6) To report periodically and make suggestions to the London Advisory Committee, and to carry out such instructions as may from time to time be issued to them.

Before the boy or girl leaves the elementary school, a "school leaving form" is filled out, partly by the head teacher and partly by a member of the school care committee, who is supposed to visit the home and see the parents as well as the child. This form gives the child's career in school, including grade, special ability, health, home conditions, and a recommendation by the school care committee as to the type of occupation the youth is best suited for. Copies of these forms are sent to the local labor exchange.

Not all youth register at the local labor exchange, and at present not all are reached by the "school leaving forms." The advisory committee tries to interview all youth who register for employment. Both parents and boys and girls are invited to attend the exchange where subcommittees of the committee meet them at certain specified times. Sometimes persons not members of the committee, such as teachers interested in the work, serve on the subcommittees. An effort is made to interview the child before he leaves school. In many cases he is urged to remain in school. In others a suitable opening is suggested.

In this case the youth is given a green card to take to the employer. In cases where no vacancy exists the application is registered and the youth is urged to call again. In the meantime the secretary tries to find an opening by getting into touch with local employers, by notifying neighboring exchanges, or by sending the child's card to a "clearing house," for special canvassing. In some cases the child may be sent to some special agency dealing with special forms of employment, such as the apprenticeship and skilled employment committee. The care committee of the school from which the child comes is informed of the action of the subcommittee.

The duties of the committee extend to all youth under seventeen, whether supplied with "school leaving forms"

or not. Schemes for coöperation with other agencies concerned with the employment of youth are arranged, as with apprenticeship and skilled employment committees, the Lads' Employment Committee, The Metropolitan Association for Befriending Young Servants, The Friend of the Poor, the Boys' Country Work Society, the Marine Society, the Society for Mentally and Physically Defective Children, the Boy Scouts, boys' and girls' clubs, etc.

In order to assist the committees, the Board of Trade has made investigations into the conditions and prospects of certain occupations. These results have been published and are supplied to members of the advisory committees. The following reports are now published:

Ready-made Women's Clothing Trades.
Bookbinding and Stationery Trades (girls).
Steam Laundries.
Leather Working Industries.
Building Trades.
Trades for London Boys.
Trades for London Girls.

The Board of Trade is compiling handbooks on various trades for the use of the advisory committees.

As none of the areas covered by a local labor exchange constitutes an industrial unit, a clearing house has been established to provide employment for youth who cannot be provided for in their own districts, and to provide openings for the youth best fitted to fill them, no matter what district they come from. The committee in charge of this work consists in part of persons, employers, and employees, alike, representing the large "city" trades and businesses, and in part of chairmen of local advisory committees. The clearing house deals with (*a*) vacancies coming to the City Exchange from employers, and (*b*) vacancies which local exchanges have been unable to fill.

Vacancies are classified as:

A. Vacancies with prospects of learning a skilled trade or business.

B. Vacancies offering good prospects of permanent employment as an adult in occupations not included in A.

C. Vacancies affording no special prospects.

A special effort is made through local exchanges or the "city" exchange to find appropriate employment for each youth.

The local committees sometimes refuse to send a youth to a particular employer, but must submit their reasons to the London Juvenile Advisory Committee. They may also refuse to send a youth to a particular type of employment. Every effort is made to obtain as many good positions as possible, and to keep in close touch with youth employed in the less satisfactory jobs. The committees can not create jobs, but they can assist in the sorting process, and can often secure improvement in the conditions of employment by working with employers, thus really increasing the number of less objectionable jobs.

The committees try not only to place juveniles, but to satisfy themselves that they have been suitably placed, and to readjust things when advisable. The boy or girl may be suffering physically, or may need definite instruction in a continuation school. The committee accordingly arranges that some one shall keep in touch with the child after he has a job. This person visits the home and ascertains whether the child and his parents like the job or not, whether he has continued in the position, and learns as much as possible of the industrial progress of the child. He attempts to induce the boy or girl to notify the committee before giving up the job, and he tries to obtain reports from the employers as to the child's progress.

The local committees coöperate with medical officers, secondary schools, evening schools and technical institutes, and clubs for juveniles. In this way they prevent an immense amount of social waste, and enable society to protect itself in a measure against some of the evils of our present urban life.

CHAPTER X

WELFARE OF WORKING YOUTH IN GERMANY

THE most significant movement in the German educational world today is the one concerned with the care of youth between fourteen and twenty, who have left the schools to go to work. Much has already been done by private initiative to care for the bodily, spiritual, economic, social, and civic needs of such youth. The new and important thing is the thorough and systematic promotion of these private efforts by the different German states. These states attempt to guide, encourage, and supplement the work of private organizations by furnishing sums of money and by training persons for leadership, as well as by discouraging dilettanteism and the exploitation of these youth for personal, political, or sectarian ends.

The obligation of the adult toward the growing child originally extended only to bodily care—food, clothing, shelter. This was soon extended to care of the spiritual life, and acquired the character of education. While at first this education devoted itself to the welfare of the individual, the modern organization of society compels us to educate the child as a member of the race, as a citizen of the commonwealth. The family, the church, associations of all kinds, and finally the state have come to undertake this work.

It is estimated that in Germany eighty per cent of the boys and over forty per cent of the girls leave the schools at fourteen to begin life as bread winners. When the parental home neglects to protect them, and when the master regards them as only cheap labor, great dangers threaten these young people and make imperative special legislation for their protection. So far as work is concerned, young people are treated like adults far too early, and the youth them-

selves approve of this false judgment and overestimate their growing powers. It must be clear to every judicious man that he cannot safely make as great physical demands upon the undeveloped youth as upon the fully developed man. Still modern systems of division of labor and labor time make little or no difference between them. The organization of modern system of work, in connection with the bad air of the workshop, factory and office, and the insufficient nourishment due to ignorance or lack of means, produce defects and deformities that hinder a complete building up of the more important physical organs; and the body, with its power of resistance thus weakened, is readily attacked by disease.

The special portion of this work devoted to the youth between fourteen and twenty-one is called by the Germans "*Jugendpflege*," and includes not only the educational work of the continuation schools, but the associated welfare movements for the physical, spiritual, economic, and civic instruction and protection of youth. These welfare movements include provision for hygienic instruction, physical exercise, play of all sorts, sports, public playgrounds, swimming baths, etc. They also include spiritual care and instruction provided by lectures, special libraries, evening entertainments, music, reading and amusement rooms. Economic and social interests are also promoted by vocational schools, savings banks, vocational guidance, training for citizenship, the organization of patrotic boys' clubs, etc. As was suggested above, the significant thing in this movement at present is its reorganization and combination with compulsory vocational education for youth between fourteen and eighteen, the vocational continuation school being regarded as the logical center of the whole movement.

In 1911, Prussia appropriated one million marks for the promotion of this supplementary welfare work, one and one-half million marks in 1912, two and one-half million marks in 1913. Under the law controlling the expenditure of these sums, committees are being organized throughout the kingdom to induce private organizations to coöperate

in this work, to supply these with money and necessary information, and to induce backward communities to make a beginning in this direction. It is estimated that at present about twenty per cent of the boys and girls between fourteen and eighteen are being reached through the coöperation of private and public organizations grouped about the vocational continuation schools.

The absolute necessity of this welfare work in connection with the vocational schools is shown in a booklet recommended to me by the member of the Prussian Ministry in charge of the continuation schools.

The character of youth between fourteen and twenty-one years of age demands this care. While man changes and develops throughout his entire life, the years between fourteen and twenty-one are a time of accelerated growth and development. The youth grows rapidly in height and weight; the volume of the heart and lungs almost doubles; he enters the period of adolescence; he is awkward, critical, and independent, and often throws overboard most of the ideals of the home, the church, and the school. He seeks satisfaction in new things and develops a new view of the world. It is apparent that he needs special guidance and protection during this period, guidance which the family, the church, and the school, especially in our great cities, cannot give.

(1) The modern family, especially in the cities, cannot do this work. Family life has degenerated in our great cities. Miserable housing, dislike for work, desire for pleasure, alcoholism, prostitution, all these are factors which have changed the character of the home there. In the year 1900 there were in Berlin 431 persons in every thousand living in homes with but one room that could be heated. These homes had only the most indispensable articles of furniture—not a trace of decoration or ornament; they provided only a covering from the weather and a place to sleep. Life under such home conditions is only a weary change from the workshop to the lodging house, except for the attractions of the street and the beer hall.

(2) The school alone cannot do much to better these conditions. It can communicate knowledge, enforce order; but the inner transformation of the child's nature comes through personal contact with the teacher. An enduring bond between the teacher and the pupil is almost impossible in the ordinary life of some portions of our great cities. Besides, the classes are generally so large that the individual child seldom comes into intimate personal relations with his teacher. I should be glad to believe that the situation was better in the smaller cities and in the country, but statistics show that the average number in a school room in Prussia is over fifty, and in one village I visited in 1914 seven teachers were caring for five hundred pupils, one teacher having eighty-five.

(3) The church is also unable to meet the whole situation. Many families in the cities never attend church. The enormous growth of materialism among the working classes shows the inability of the church alone to grapple with this problem. It is also true that many of the activities grouped under the head of "Welfare of Youth" are outside the scope of what most church people regard as their usual duties. It seems clear, therefore, that it is not enough for the State to protect the youth against too long hours of labor and unsuitable employment, and then leave their further care and protection to the factory and the street. Under such conditions the youth becomes a sacrifice to economic demands and to low pleasures, and is finally the tool of unscrupulous politicians.

There are 4,500,000 youthful workers in Prussia. Of these, about 900,000 boys and 700,000 girls are between fourteen and sixteen. Of the 1,200,000 boys between sixteen and eighteen, eighty-six per cent are at work. Of the 1,200,000 girls of the same age, about seventy-two per cent are at work. The influence of the family in such cases is necessarily weakened. Perhaps half of these young men are apprenticed, although at the present time it is estimated that not more than three-fifths of the apprentices live in the homes of their masters. Even here the old traditions have

vanished, and the interest of the master has become essentially economic, not a personal interest in the care and education of the apprentice. In those cases where the boy still lives with his parents, his sharing in the support of the home has made him somewhat independent of parental control.

The statistics of Germany show a considerable increase in youthful crime, brought about largely by the conditions mentioned above. During the years from 1882 to 1896, crime among adults increased 4.6 per cent; crime among young people, 16.7 per cent. Such crimes as stealing, arson, assault, increased 37 per cent among the youth during the years from 1897 to 1902. Assault resulting in bodily injury increased about 130 per cent during the years from 1882 to 1901. Although part of this apparent increase means only increased severity in punishment, much remains which cannot be explained in this way.

The economic effect of this situation must also be considered. The young man who develops under favorable conditions becomes a very different laborer from the one who through one-sided demands upon his bodily powers, through too strenuous labor, through unregulated, unhygienic conduct of life, through use of alcohol, or premature and excessive use of tobacco, or sexual excesses, becomes stunted in bodily development and loses his health. The economic loss of national capital, due to neglect of the youth, may be seen from the following statistics:

Professor Biedert of Strassburg estimates the cost of rearing a child to the age of fourteen (when the child of the unskilled laborer goes to work), under the poorest working-class conditions, at about $700.00, while it cost $1,200.00 to rear a child in the better class to the age of seventeen. If this youth dies without taking part in the national labor, his death is a loss of national capital. Herr Potthof, a professional writer in this field, estimates that it costs the family, the community, and the State $1,750.00 to care for and educate a child up to the age of fifteen. He estimates, too, that the yearly loss to the German Empire from infant mortality alone is $25,000,000 (in 1909 there were 335,436

such deaths—each a loss of $75); the loss due to the death of children before reaching the age of five years (over 100,000 in 1909) at $32,500,000; the loss due to the death of the 40,000 school children before completing their fifteenth year at $35,000,000—a total of $92,500,000 per year.

But this is not the whole story. The State loses not only the money spent in rearing and educating the 500,000 children but also the value of their lifelong working power. Dr. Keitlin has estimated that the working power of the average man represents a national capital of $4,000. To the $92,500,000 expended for the rearing of the 500,000 children must be added a deficit in the productive power of the people of five hundred thousand times four thousand, amounting to $2,000,000,000, which is involved in the premature death of children before the age of fourteen.

Nor is this the whole story: There is a tremendous loss of capital based on loss of power for bodily work, due to frequent cases of illness of the youth in industrial life, as well as to premature old-age disability. These losses, under the scientific insurance scheme of Germany, fall in varying proportions on the individual workman, on the employer, and on the State. In the case of accidents (which it is beyond the power of the individual workman to prevent), the employee contributes nothing to the indemnity fund; the employers pay all. In the case of sickness, which is to some extent within the power of the individual to prevent or lessen, the workmen pay two-thirds, the employers one-third. In old age and invalidity insurance the workmen and the employers pay equally, and the State contributes about $12.50 annually to each annuitant. The general acceptance of these compulsory insurance plans would seem to make it proper to discuss the matter of disability losses from the economic point of view, as expressed in dollars and cents, not forgetting that the waste of human life and power means a deeper loss to the State than can ever be expressed in any financial terms. In this case, however, economic advantage and brotherly love seem to point in the same direction.

Let us leave out of sight for a moment this last consideration. The bare figures are appalling. For the entire number of male persons between fifteen and nineteen years of age, insured under the workmen's sick fund of Leipsic, there were, for a definite period studied, 6.2 days of illness per member per year; for the metal workers, 8.1 days per year, and for youth in offices, shops, and stores, 4.1. If it were possible to reduce the frequency of days of sickness of youthful metal workers to the frequency of those employed in offices, shops, and stores, the saving in expense to the sick fund for the Empire would be over $15,000,000 per year. This would mean to the group of metal workers alone a reduction in their insurance fees of almost $500,000 per year. Dr. Kaup estimates the gain to the female workers of this age at $350,000 if they could succeed in reducing the number of days of sickness per year (averaging 7.5) to the number of days of sickness of female workers in offices and shops, 6.1. Further, the loss of wages due to sickness, brought about by overexertion and other unhygienic life conditions in the vocations, according to Kaup, could be reduced every year about $875,000 for the entire number of male workers and $437,500 for the female workers, if we allow only 4.1 days of illness per year for the male and 6.1 for the female. In this way the amount expended for sick benefits for the entire Empire would be reduced $17,750,000 every year for the male workers and $4,000,000 for the female workers. If we could only succeed in reducing the frequency of sickness for the entire number of members of the sick fund one day per year, a loss of wages of $19,500,000 per year would be avoided, and at the same time a reduction in the sum expended for sick fund fees of almost $3,750,000, while the sick fund itself would be saved over $7,750,000. There is still one more item in the account to be considered, the loss in working power due to premature invalidism, brought about by unhygienic conduct of life in youth, amounting to millions of marks a year. No wonder the German writers consider it a holy duty for the State authorities to conserve the working power of the people

as long as possible and to postpone their lapse into disability by attention to the welfare of the youth.

The percentage of sickness among the male youth in many of the trades is much higher than among the older workers, up to the age of thirty-nine. Sickness among women workers seems to increase with age, according to the same statistics, in all the groups, while in certain industries the terribly high figures show the devastating effect of vocational activity upon the health. In three particular industries—textile, garment-making, commercial employment—out of every one hundred youthful female members of the sick fund there are 3.2, 7.2, 6.9, respectively, more cases of illness than among the male workers. The number of deaths from tuberculosis increases rapidly in the great cities among girls between fifteen and twenty years of age.

The number of girl workers is very great in Germany. According to the imperial statistics for 1910, out of one and one-half million women workers 489,130 are girls between sixteen and twenty years of age, and of these 145,715 are employed in the dangerous textile industries alone. These figures are constantly increasing. The group of the youngest employees, those between fourteen and sixteen, increases in a striking manner. In the commercial trades there are in addition to 125,000 men, according to the last census, 76,000 girls at work. A German writer says, "he who remembers that over 40 per cent of the entire female youth are employed in earning a living, and he who has seen the human material that streams every evening out of the doors of the factories and shops, comprehends us when we speak of the exhaustion of our rising generation."

We must too consider the importance of health to the mother of the coming race. Everywhere people speak about the protection of the mother and the infant, but trouble themselves very little about the young girl. It is evident that anæmic, exhausted girls can never be the mothers of vigorous children. The dangers are also increased by the exacting vocational activities, which will

never permit a happy family life with healthy, joyous children, and which prevent the acquisition of the sound knowledge of household economics necessary to a wholesome family life. It is apparent when one takes into consideration the injurious effects of factory work upon the young girl who is without proper care, that we must be at least as vigilant in her behalf as for the protection of the boy.

The economic success of Germany in the markets of the world, of course, depends largely upon the training of her youth. Her political progress is dependent upon her ability to train youth in the civic virtues, while her military strength requires systematic attention to both the physical and spiritual power of the people. *Jugendpflege*, therefore, is both an economic and a military necessity. Germany's ideal for its youth has been expressed as "the production of happy, physically efficient and morally sound men, filled with public spirit, the fear of God, and love of home and Fatherland."

The German feels that the more the economic life of the country develops, the greater are dangers of disaster and shipwreck to its youth, and the more necessary are organizations to rescue them. With an increasing culture, there must be a stronger public spirit and feeling of responsibility for the youth. The public must recognize that spiritual distress is often the result of physical and material misery. The perception of this and the common feeling of responsibility for it are the most hopeful signs of the present age. In addition to this, the Germans feel that neglect of these youth constitutes a danger to their national existence. They are not willing that the problem should be left to the dilettante, but insist that it must be taken up by well-trained, practical workers, responsible to the whole community.

Up to 1911 this welfare work was cared for by private initiative. The churches, Roman Catholic, Evangelical, and Jewish, organized associations of youth for sport, recreation, and spiritual advancement, non-religious bodies of all sorts, such as the turners, the trade unions, and a large number of charitable associations interested themselves in the movement. The statistics of the Catholic Church in

Germany show 2,656 associations of youth, with 257,465 members. The figures for the Evangelical Church give 2,419 associations, with 142,826 members, with 233 professional workers, and 172 homes. The Jewish organizations include 80 unions, with 14,000 members. The social democrats report 227 organizations, with 153,616 members. These organizations usually provide reading-rooms, libraries, exercise grounds, lectures, etc., for the youth.

Since 1911 Prussia and other German states have undertaken to guide and stimulate this work throughout the entire country. They encourage the organization of local associations, then a combination of these into larger groups, including finally the whole country. Experience has shown that united effort is necessary to success. The Olympic games have contributed to bring about this feeling. There has grown up gradually a belief that a harmonious care of the body must be combined with corresponding spiritual culture if real success is to be attained. In carrying out the law of 1911 the Prussian government undertook to group all the private agencies for youthful welfare about the work of the continuation schools. With the scheme of compulsory continuation schools came the opportunity for reaching *all* the youth. The work of the voluntary organizations could be guided and assisted into the right channels, competition between them could be avoided, and the work of dilettanti and self-seekers could be discouraged. There is a general disposition in Germany at the present time for all sorts of organizations, religious or otherwise, to support a national system of welfare work which *will not displace* private effort, but will supplement, assist, and direct it. This work, as has been stated, is grouped about the continuation schools and is assisted by them. In return it contributes greatly to the efficiency of the work of these institutions and prevents their lapsing into mere machines for securing mechanical skill.

In 1908 Dr. von Seefeld of the Educational Department of the Prussian Ministry of Commerce and Industry sent out a circular in which he states the ideals of the govern-

ment: "Over against the overpowering influence to which continuation school pupils are subjected day by day in the workshop and in the circle of their older associates, the educational influence of the continuation school cannot be of far-reaching effect so long as it is limited to the four to six hours per week, which the young people as a rule devote to them. The most important problem of the continuation schools will always be the educational one, and for this reason their influence cannot be limited to the time of school instruction, but they must strive outside school hours to secure the confidence of the youth entrusted to them. This problem must be attacked with all the more earnestness where the industrial youth do not live in the parental home. The problem is to gain a definite and decisive influence over the industrial youth *during their free time.* The problem is not to compel the young people to conduct themselves in a perfectly proper manner for a few hours per day, but to secure a voluntarily accepted influence over them *all the time.* This principle must guide us in the creation and care of welfare organizations.

"First the arrangements for the care of these youth must be free from outward compulsion. The imposing of any kind of compulsion would generate among the youth an inner opposition that would often lead to the opposite of wished-for results. The interest in these welfare institutions cannot be secured by outward compulsion, but must be the result of the fact that they adjust themselves wisely to the nature and inclinations of the youth, that they unite themselves in efforts to secure for the young people opportunities for amusement in their free time when they can be happy with their associates. These efforts we must try to guide into right channels. The more success we have in this, the more certain will be the voluntary participation of the youth, and the sooner the way will open for the earnest moral influence of the educator.

"It will often contribute to the success of these welfare organizations if the continuation school pupils are permitted to take part in their control. I see no objection to

this, but regard it as an advantage if the welfare organizations are based upon unions formed among the pupils for the purpose of the common control of the organizations intended to further their interests. Of course the educators and teachers of the continuation schools must take part in these unions.

"This coöperation of teachers and pupils, when it is carried out without narrowmindedness and with wise understanding of the nature and ways of youth, will contribute to the forming and strengthening of a mutual confidence between teachers and pupils that will bear good fruit for both.

"Every attempt at uniformity and every bureaucratic scheme must be kept out of these organizations. Their plans must adjust themselves in a many-sided way to the local and industrial peculiarities of the youth, and must change with the time of the year. In the summer time the first place will usually be given to physical exercise of every kind, including turning, play, sport, or excursions. No other arrangements are so well suited to foster among the youth a fresh, happy disposition and an inclination to be satisfied with a reasonable application of his superfluous powers. In winter physical exercise must to some degree be given up, although we have skating and other winter sports. Arrangements should be made which will enable young people in their free time on Sunday afternoons and evenings to meet in some pleasant spot and enjoy one anothers' society, and places should be provided where suitable entertainments can be held.

"Student homes and clubs are very helpful and should be a part of the supplemental organization of every system of vocational schools. Special emphasis should be placed upon providing young people with good reading. Special school libraries should be provided for the larger continuation schools. But in smaller communities it will be possible for the teacher to awaken an interest in young people for good reading and to point out to them places where they can secure good books."

BOYS' CLUB CONDUCTED BY THE LABOR UNIONS OF BERLIN

In the report of the National Industrial Educational Commission of Prussia for 1912 are found the following figures, showing the results accomplished in the year 1910. In that year there were 373,546 pupils in the continuation schools, 196,834 of whom enjoyed the benefits of the welfare work.

Physical Care	Schools
Turning	448
Athletic sports, running games (Turnspiel)	542
Swimming, skating, etc. (Sport Übungen)	142
Bathing and swimming	142
Excursions	566
Rowing	2
Prize turning and long distance running	3
Education, Instruction and Entertainment	
Lectures	491
Visiting places of interest	336
Entertainments	134
Pupils' homes	112
School festivals	373
Instruction in first aid	149
Theatrical performances	9
Exercise in singing	10
Entertainment evenings	7
Various arrangements	9

Besides these there were 693 small libraries, with 189,473 volumes. There were 68,799 borrowers of these volumes, using 407,455 books. There were 37 advisory stations for vocational guidance and 77 savings banks. In the savings banks in Berlin alone there were deposited 59,731 marks. These are provided with an automatic arrangement for depositing money and giving and checking cards, which makes this work easy for the teachers.

The famous decree of Jan. 18, 1911, with reference to *Jugendpflege* is simply the result of previous private and community work in Germany. The various chambers of commerce and industry have long been supporting such

institutions. The communal authorities have been granting them rooms, playgrounds, and financial support. The state authorities of various provinces have now begun to take part in the movement, and everywhere private associations have been organized to coöperate in it. The action of the Ministry of Education was only a further step in the same direction. The decree is too long to quote, but it is an attempt to assemble and organize the scattered movements, often without any connection with one another, and not seldom rivals and opposing movements, into an organization of *all* for the welfare of youth, carried on with a uniform point of view. The function of the State is to support existing organizations so far as they are worthy, to further and supplement them in a financial way, and to induce communities and districts to make sacrifices for the movement.

The action of the Ministry has been successful in stimulating interest and activity in this work. Within a year nearly all the provinces of Prussia have organized for carrying on the movement, so that state, communal, and church authorities and private associations of all sorts are working together for the youth. From April 1 to December 1, 1911, in 27 governmental districts the number of youth receiving such care increased from 469,937 to 560,489, an increase of over 19 per cent.

The decree appealed to all classes of people to interest themselves in the movement. The work had suffered in the past from well-meaning but poorly prepared leaders. The State set about to remedy this by instituting courses for training persons for this work of leadership. In the year 1912 there were held 434 courses of this sort with an enrollment of about 22,139, 11,755 of whom were teachers. Finally, the State has instructed the State Training School for Teachers to take up the preparation of persons for this work. The dilettanteism of former years is being uprooted, and well-prepared leaders are being put at the head of the movement. Only the State can successfully attack such a task.

In America we have been doing many kinds of welfare work for the youth. Some of it has been excellent and should not be disturbed except to improve it; but, as in Germany, it has been impossible to reach all who should be benefited by it. The introduction of compulsory vocational schools in some states has made it possible to attack the whole problem there. Europe's experience would indicate that the continuation school is the key to this whole great movement.

The argument from Germany has been made to stimulate attention to this problem, not to urge mere imitation of their plans. We should be influenced by the experience of others, but we must deal with our own problem in accordance with American conditions. It is high time that we give thoughtful attention to the welfare of our working youth; mere vocational efficiency is not enough. As in our ordinary schools, we must deal with "the whole boy," and give the working boy and girl between fourteen and eighteen the social and other advantages that we now put at the disposal of the high school student. Our public high schools have done a great work, not alone on the side of intellectual progress, but on the social side, in a large sense; they have helped to break down social barriers and have given the ambitious in all walks of life a chance equal to that of the most favored. But not all the ambitious have had this chance; only those who have aimed at the professions or at administrative positions have had a higher education freely open to them, with all the collateral advantages that go with such an education. The rest of the boys and girls, far more numerous and less favored, need these advantages all the more,—a chance for a better and broader education along the lines they themselves have chosen, and the richer and happier life of body and spirit that young people of all walks should have an opportunity of winning for themselves. This is the problem that in Germany has been given the special name of "*Jugendpflege*"—the great problem of the welfare of youth.

CHAPTER XI

RÉSUMÉ OF REPORT OF SWEDISH ROYAL COMMISSION ON ELEMENTARY TECHNICAL INSTRUCTION

In 1907 the Swedish government appointed a commission to investigate the subjects of advanced and lower industrial education in Sweden and foreign countries. They spent five years in the investigation and submitted their reports, the one on elementary industrial education in three large volumes, in 1912. The investigation covered all the countries of Europe having a system of such schools, as well as the United States and Canada.

The Swedish government has already acted on one of the reports and the author saw continuation schools in Stockholm, organized on the Munich plan, in the winter of 1913–14.

The author met Dr. Hjalmar Lundbohm, one of the commission, while in Stockholm, and has had translated for American readers portions of the report on elementary technical instruction selected by Mr. Lundbohm as containing the fundamental findings of the commission.

BEFORE 1850 the only technical instruction of any kind in Sweden was given in the Technological Institute in Stockholm, the Chalmers Sloyd School at Göteborg, and the mining school at Falun—all of which were secondary schools.

It was L. J. Wallmark, the director of the Technological Institute, who, October 9, 1850, proposed a remarkable plan for introducing a uniform system of elementary technical schools, under a separate board of management, in addition to Sunday and evening schools for workmen and apprentices.

In pursuance of this plan about half a dozen elementary technical schools were founded as well as Sunday and evening schools for special lines of work.

In 1872 a commission was appointed to reorganize these schools, and by the end of the decade important changes had been made. For one thing, the elementary technical schools were not required after 1877 to prepare pupils for the intermediate technical schools. For another, such academic subjects as were taught during the second half of the three-

years' course were taught in immediate connection with the technical work.

In 1878 the State began to subsidize these schools, and since that time they have increased considerably in number, and individual schools have added more departments of work.

But the percentage of attendance is still very small when compared with the figures for other countries. Compare the number of pupils in the elementary technical schools per thousand inhabitants, in the following list:

Prussia	9.2
Baden	8.3
Belgium	7.8
Denmark	9.6
Sweden	2.6+

The amount of money granted by the State, per 1000 inhabitants, is as follows:

Baden	$104.00
Austria	76.00
Prussia	68.00
Netherlands	56.00
Denmark	47.00
Finland	40.00
Norway	39.00
Sweden	24.00

In Munich alone — a city of only about 560,000 inhabitants — as much money is spent on vocational education as is given to the whole system of elementary technical training in Sweden.

It is astonishing that so little should have been done in this direction when the enormous industrial development of the last thirty years is considered. In 1908 there were more than four times as many factories as in 1879. Their value was more than ten times as great, and they employed almost six times as many workmen.

It is true that the State subsidies to elementary technical schools, during this period, increased from $59,481 to $127,-

690.56 — more than doubled. But in Prussia, during the twenty-five years from 1885 to 1909, such subsidies had increased from $142,500 to $2,875,000 — that is, had become almost exactly twenty times as much.

Very few men with any degree of technical training obtained in Swedish schools are employed in Swedish industries. In factories, the commission found only one to every four factories and 126 workmen; in the timber business, one to 34 plants and more than 900 workmen; in mines, one to every 60 workmen. As many technical experts are needed in all these lines, it appears at once that this proportion is astonishingly small. More than ten per cent of the technical experts employed in industrial pursuits, especially in sugar factories, breweries, dye works, and electro-technical shops, have been trained in foreign technical schools, while in the cloth mills, the leading industry of Sweden, which in 1908 had an invested value of $49,950,000, almost all positions of responsibility, both technical and executive, were held by foreigners.

From these facts the Commission concluded that either technical training in many lines of industry was not given at all in Sweden, or else it did not meet the requirements of the present day.

The weakness of the system was due to the fact that it had remained almost stationary since its reorganization nearly forty years ago. Then emphasis was laid on education that was broadly technical, and prepared only in a very general way for any kind of industrial work, while elementary technical schools in other countries almost without exception were organized as special schools for particular trades and industries.

For example, such continuation schools as have existed are almost academic in character. The majority of the students study arithmetic, Swedish, writing, bookkeeping, and drawing, and technical training is quite in the background.

The elementary technical schools made the mistake of admitting pupils immediately from the elementary schools,

before they have any experience in industrial work, and while they still have no idea to which branch of it they mean to devote themselves. Accordingly, the work is so planned that the pupils may afterward take up any line they please. All the emphasis in teaching is laid on basic subjects, such as mathematics, physics, chemistry, and drawing, and although there are technical classes in the second half of the course, the pupils give only from one-fifth to one-fourth of their time to such work. Consequently, at the end of the three years' course, they are still badly prepared.

Even in the Art-Trades School in Stockholm the teaching is still general, and technical training in arts and crafts is given only to a very limited extent.

The only technical schools worthy of the name, the two mining schools at Filipstad and Falun, the textile school at Boras, and the building- and machine-trades departments of the Stockholm school, have been greatly hampered by the lack of proper equipment.

No measures for training teachers have been adopted. The technical instruction is given by common school teachers, who, from the very nature of their own training, cannot be expected to understand the practical requirements of vocational education.

There is no central authority and no uniform method of inspection in the Swedish system. School boards have almost unrestricted freedom in planning the schedules at their own discretion. More than one hundred different subjects are listed, although it is clear that the same subjects, or different parts of the same subjects, often go under different names. The school boards, in their desire to please everyone, have added one subject after another until the original purpose of the school is quite set aside.

The only inspection work is done by the director of the Stockholm school, in addition to his many other duties; and the entire sum spent for it, aside from hotel and traveling expenses, amounts to $243.00 a year. That such inspection could not have much effect is obvious.

The plan proposed by the Commission proceeds from

the hypothesis that elementary technical training must be broadened and developed until we can guarantee to the majority of workmen of all kinds a technical education suited to their abilities.

It is not a satisfactory state of affairs when only the leaders of industry receive an adequate training. The strong competition of the present time, as well as social progress, makes it both necessary and just that workmen also should be carefully trained for their occupations.

The Commission thinks that the representatives of professional and industrial interests should be guaranteed a controlling voice in the conduct of elementary technical education, and that the State, while it subsidizes private enterprise in this work of extending education to all, should exert its authority to the end that the system shall fulfill its mission, and progress with the needs of the times.

The lack of technical training in our continuation schools may be explained, in the first place, by the fact that we are still practically lacking in up-to-date supplementary schools, and that such as we have are very little attended by young workmen who have just left the elementary school.

By the time they are old enough to realize what technical education could do for them, they have forgotten the greater part of what they learned in the elementary school; and when so much time has to be given to the review of elementary subjects, they are easily discouraged from attendance, and quickly lose interest in the work.

To remedy this condition of things, the first course in the continuation schools should be so planned that the young workman, while he is learning his trade, shall fix and supplement his elementary school knowledge by applying it to the actual problems that come up in the course of his work.

Accordingly, the Commission would divide vocational training into two sections:

I. Elementary Continuation or Trade Schools (*lärlingsskolor*) (for boys just out of the elementary school).

II. Advanced Continuation Schools (*Yrkesskolor*) (for older workmen).

(These two groups of schools are to arise from a reorganization of the old general continuation schools in such a way that the first shall help boys from fourteen to seventeen to apply their elementary school knowledge towards the learning of a trade, while the second shall give training of a more technical character to workmen over seventeen.)

As it is clear that no elementary continuation or trade schools can serve their purposes unless attendance is compulsory, the Commission would make it obligatory for all young people between fourteen and eighteen who are employed in factories and workshops, but at the same time, not to trench too greatly upon the work, would limit the instruction to only a few hours a week.

In this way the pupils will make use of their elementary knowledge; the majority will be guaranteed a minimum of technical training; and a foundation will be laid for more advanced technical work in an advanced continuation school. It should even be possible for advanced continuation schools to organize technical courses with fixed schedules in specialized lines of work, and so become real technical schools in these lines.

The Commission aims to bring into existence, side by side with theoretical instruction, a kind of practical elementary training that shall bear the same relation to the higher technical schools as the academic courses that prepare for them.

Further, the Commission holds that a nine-year academic course, together with a three- or four-year secondary technical course, is not the best possible training for men holding positions of responsibility in industrial work. What they need rather, as the first essential, is much actual experience, combined with sound theoretical training but never for any length of time interrupted by it.

The same kind of training should also be best for draughtsmen, laboratory assistants, and for men in a host of other industrial and commercial positions that call for much experience as well as extensive knowledge.

To introduce technical training of this sort and to meet

the many new technical demands for which our present system of schools lacks equipment, the Commission holds that these schools must be either reorganized or replaced by real technical schools for special trades and industries, such as the mining schools at Filipstad and Falun, and the building- and machine-trades departments of the technical school in Stockholm, each of which is limited to its own special field in industry.

Such schools the Commission proposes to call Technical Schools for Special Trades and Industries (*tekniska fackskolor*).

On much the same principles, a plan has been worked out for the reorganization of the technical school in Stockholm into a *school of arts and crafts on an industrial basis.*

To train teachers of vocational subjects, to supply textbooks and models, to test materials of instruction, and to furnish a good practice school for vocational education, a *state normal school for vocational education* should be established.

To give the representatives of professional and industrial interests a controlling voice in the conduct of these schools, and so in the management of the entire system, all such schools in future, as well as those already established, shall be under the supervision of local boards on which industrial interests should have much stronger representation than they have usually had in the past.

The Commission is convinced, as a result of their investigations, that very little headway can be made with vocational education until the system is placed under a strong central authority. It therefore does not hesitate to return to the plan proposed by Wallmark in 1850, and again by the Commission of 1872, but never, to the great hindrance of technical education, carried out: namely, that the vocational schools should be under a *separate board of control.*

To sum up, the system of elementary technical schools in Sweden should consist of the following:

Elementary Continuation or Trade Schools.

Advanced Continuation Schools.

Technical Schools for Special Trades and Industries.

The Technical School at Stockholm reorganized as a school of arts and crafts.

The State Normal School for Vocational Education.

The National Board of Control for Technical Schools.

Elementary Continuation or Trade Schools should be of three kinds:

1. *Industrial Continuation Schools*, which aim to complete, from a theoretical, and as far as possible practical, standpoint, the apprentice training that can be obtained by working at a trade or industry.

2. *Full-time Trade Schools*, which aim to give a complete apprentice training, practical as well as theoretical.

3. *Trades Preparatory Schools*, which aim to prepare for apprenticeship.

For the present the *Industrial Continuation Schools* must do most of the work; but in certain cases there is room for both the others.

The *Industrial Continuation School* assumes that the practical training is obtained, for the most part, by actual work in factories or workshops. To secure this, an apprentice law is needed, which shall see to it that the practical training is carried out properly. For the present it must be the task of the community to watch over and guide its young people during the years so important for their development, immediately after they have left the elementary school.

Communities should be authorized by law to make regulations for trade schools at which attendance shall be compulsory for all young people between the ages of fourteen and eighteen, who are employed in factory work, handicraft, or any similar occupation; and employers must be obliged to give their employees time for going to school, and, together with parents and guardians, should see to it that school is attended.

The school work should usually be given for from six to

twelve hours a week, with an average of eight; and it should continue for three years.

The pupils should be divided, as far as possible, into sections according to the kind of work they are doing, and the instruction should be adapted to the special needs of each section. When necessary, school workshops should be added.

Full-time Trade Schools are more expensive to establish and maintain, as they need completely equipped workshops. Moreover, the students cannot afford to attend them for three or four years, as they would be unable to support themselves during that time. The Commission recommends these only for very special cases.

Trades Preparatory Schools are more practicable. They assume that the training shall be begun in school shops and shall be continued and completed in workshops or factories. The schools must vary for different trades and industries, and should be established, when the need of them is felt, by coöperation between employers and the National Board of Control for Technical Schools.

The Advanced Continuation Schools should aim to give workmen of good practical experience the chance to broaden and deepen the training for which the foundation was laid in the trade school, and to acquire the utmost proficiency in their line of work. By this means they increase their skill and their earnings, and the way is open to them to become foremen, or to hold other responsible positions, or to set up for themselves independently as masters of a craft.

The choice of subjects in these schools should not be left altogether to the pupils themselves. While single courses of a general character, which the pupils may take as they please, cannot be altogether omitted, the teaching should be planned, as far as possible, to continue along definite lines of work, with fixed schedules to be followed within a specific time and required of all who take the courses.

Vocational courses should be planned as evening courses when they are attended exclusively by workmen; as day

courses when more consecutive time is needed, or when they are the centers for certain lines of work within a district (or a large part of a district), or when evening courses for other reasons are not suitable.

For entrance to such courses, previous experience in some line of work must be the first essential. They are not a means for people with little or no vocational experience to get by a short cut a superficial and incomplete training in a trade.

For admission to the general courses, at least two years of vocational experience should be required, and for entrance to the vocational courses, three. The minimum age should be seventeen, and some knowledge of reading, writing, arithmetic, and drawing should be required.

The instruction should be grouped about the following subjects: Swedish, economics, and technical instruction. The last should include practical work whenever it can be suitably provided.

The Technical Schools for Special Trades and Industries should aim to give the technical information which, as well as industrial experience, is needed by those in charge of workshops, factories, and other places where industrial work is carried on, and by designers, draughtsmen, and laboratory assistants. Further, they should give men engaged in business or manufacturing the information about certain branches of school instruction which they need for their pursuits.

The Commission proposes that the elementary technical schools in Norrköping, Malmö, Örebro, Borås, and Härnosänd, and the building- and machine-trades schools connected with the technical school at Stockholm, and the textile school at Borås, shall be changed to:

Three technical trade schools for machine-trades, one in Stockholm, one in Malmö, and one in Örebro.

Two technical trade schools for building-trades, one in Stockholm, and one in Malmö.

One technical trade school for road construction and waterworks in Norrköping.

One technical trade school for the textile industry in Borås.

One technical trade school for cloth finishing in Härnösänd.

It proposes also the establishment of the following:

One technical trade school for the chemical industry in Helsingborg.

One technical trade school for the wood-, cellulose-, and paper-industry in Karlstad.

In the mining school at Falun, a section for the training of master-moulders.

For entrance to these schools, at least two years of experience, acquired chiefly in working at some trade, should be necessary.

The theoretical requirements for admission must not be too hard for intelligent and ambitious young workmen who have had no chance to study for an academic education; but must otherwise be adapted to a severe thinning out of candidates.

The Commission thinks that these requirements should be equivalent to the work done in the secondary academic school* in the basic subjects; namely, Swedish, mathematics, physics, chemistry, and, for certain trades also, drawing and sketching.

The Commission thinks that the course should be short, consisting usually of two years of forty weeks each, with from forty to forty-four hours a week.

The instruction in each school or section of a school should be limited to one branch of industry, and should be carried on with strict reference to the practical purpose of the school. The application of technical theory must continue to be the chief aim and must take most of the time. The basic theoretical subjects, such as mathematics, physics, chemistry, etc., must be regarded as strictly auxiliary in giving the necessary principles for the study of the technical subjects.

*Equivalent to the first two years of our high school.

These schools should be suitably equipped with libraries, up-to-date laboratories, and collections of materials for study.

The Technical School in Stockholm should be thoroughly reorganized. The building- and machine-trades sections, and, to some degree, the technical evening and Sunday school for women, should be enlarged. The art work should be carried on in two sections: an *Art-trades School*, planned, in the main, on the same lines as other vocational schools, and, for advanced work, a *School of Arts and Crafts*, with which a section for the training of drawing and writing teachers can be combined.

The School of Arts and Crafts should include the following sections:

1. Furniture making.
2. Sculpture and modeling.
3. Ceramics and glass-making.
4. Smithing and engraving.
5. Gold and silver work.
6. Book-making, printing, and poster work.
7. Textile arts.
8. Decorative painting.

Each section should be under the direction of a professional teacher (man or woman); but the final control and the responsibility for the kind and quality of work must rest with the director himself.

The school must be equipped with studios and laboratories, and the instruction should be mainly practical, with a view to awakening the pupil's artistic feeling and taste, making him familiar with the technique of his work, and giving him a thorough understanding, on the basis of his own experience, of the adaptability of his designs to the materials and to the purpose for which they were intended.

The State Normal School for Vocational Education should be founded in order that the State may take over a portion of the vocational training which would otherwise fall upon the city of Stockholm. It should be planned to serve as an institution for training teachers and as a practice school for vocational education. It should include trade schools and

other vocational schools for most kinds of work which are extensively carried on in our country.

The training of teachers must provide for the person who, either through long practice of a trade, or by attendance at a vocational school, or in some other way, has obtained a good knowledge of vocational theory and practice. He should be allowed, in a shorter course of eight weeks, to hear and see vocational training given on a model plan; and he himself, while he is completing his vocational training, should be given the chance, under suitable guidance and criticism, to take part in the teaching.

Normal school teachers should help in the training of teachers, and, in connection with their work, should aid the Board of Control in plans for organization, textbooks, and the collection of models, and for the testing of materials used in instruction.

The National Board of Control for the Technical Schools should consist of a chief with four assistants and the necessary office force.

This board should be empowered to carry out the new organization of the system of elementary technical schools and to watch over and direct its further development.

The appointment of such a board must, therefore, be the first step toward reform.

Support of the Schools

Continuation schools, both elementary and advanced, must belong to the community. The State, however, must on certain conditions contribute to their support as follows:

1. Two-thirds of the amount paid in salaries to teachers and directors.

2. From five per cent to ten per cent more of the State subsidy granted on this estimate toward the supply and upkeep of materials used for instruction.

3. Two-thirds of the cost of the original stock of such materials.

The Technical Schools for Special Trades and Industries must be supported by the State; but the community in which

each school is established must provide the building and a house (or the money for it) for the director.

The Technical School in Stockholm must, after its reorganization into a school of arts and crafts, be entirely supported by the State.

The State Normal School for Vocational Education must be a national institution, to the support of which, however, the city of Stockholm must pay a suitable contribution.

The annual cost of our present system of elementary technical schools amounts now to about 500,000 kronor ($135,000). According to the plan of the Commission, this would be increased to 1,200,000 kronor ($324,000) a year, and 900,000 kronor ($243,000) of initial outlay, besides the cost of buildings.

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